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THE ARMED FORCES COMPTROLLER

AMERICAN SOCIETY OF MILITARY COMPTROLLERS

WASHINGTON, D. C.

DECEMBER 1960

VOLUME V NUMBER 4

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CONTENTS

	Page
STATEMENT REQUIRED BY POST OFFICE REPORT	1
FOURTH NATIONAL CONVENTION REPORT Kenneth E. Dunlap, Convention Reporting Committee	2
IMPROVEMENTS IN THE FINANCIAL SYSTEM FOR PROCUREMENT AND PRODUCTION Howard W. Bordner, Deputy Comptroller for Accounting, Finance and Audit Policy - DOD	7
TRAINING EXECUTIVES IN FINANCIAL MANAGEMENT Fred W. Winkleman, Chief of the Statistical Analysis Division, Office of the Comptroller, Army Map Service	18
EDP FOR MISSILE MANAGEMENT Colonel Alan G. Haemer, Director of Comptroller, 1st Missile Division, Vandenberg AFB, California	23
THE TRANSACTOR – A NEW DEVICE FOR SOURCE DATA AUTOMATION Claude T. Gurley, Head, Data Processing Division, U. S. Naval Weapons Plant, Washington, D. C.	26
AUDIT SERVICE IN AND FOR THE ARMY (THE U.S. ARMY AUDIT AGENCY) Bernard B. Lynn, Assistant Chief, USAAA For Policies And Plans, Headquarters, United States Army Audit Agency	29
FINANCIAL MANAGEMENT OF THE MILITARY PERSONNEL APPROPRIATION Major General E. S. Ligon, Jr., Director of Personnel Planning, DCS/Personnel, Hq. USAF, Washington, D. C.	38
THE BALANCED BUDGET Arthur Smithies, Nathaniel Ropes Professor of Political Economy, Harvard University.	42

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Kenneth E Dunlap
(Signature of editor, publisher, business manager, or owner)

Sworn to and subscribed before me this 12 day of September, 19 60

[SEAL] Thomas N Vassil

(My commission expires March 14, 1962)

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(July 1960)

REPORT ON THE FOURTH NATIONAL CONVENTION OF THE AMERICAN SOCIETY OF MILITARY COMPTROLLERS

Kenneth E. Dunlap, Convention Reporting Committee

The fourth National Convention of The American Society of Military Comptrollers was held in room 5-1070 of the Pentagon, Washington, D.C. on 7 October 1960.

Brigadier General Herman Nickerson, Jr. National President, ASMC and Fiscal Director of the Marine Corps, made the welcoming address. Mr. James F. Wright, Deputy Director of the Marine Corps and National Vice President, ASMC was the Presiding Officer. Other speakers included Captain Vernon E. Day whose subject was "Mission and Management of the Coast Guard"; Mr. James H. Hammond, Assistant Director, Defense Accounting and Auditing Division, General Accounting Office, spoke on "The GAO Approach to DOD Negotiated Contracts".

Brigadier General I. L. Allen, USA Deputy Director, Armed Forces Supply Support Center, spoke on the "Armed Forces Support Center," and Mr. Charles E. Walker, Assistant to the Secretary of the United States Treasury. Mr. Walker's subject being "Monetary Affairs in the Treasury Department".

Captain Day's address follows:

IT JUST HAPPENED THAT --
By Captain V. E. Day, USCG

Two boys from Glen Burnie were horsing around in their 14-ft. outboard, and struck a can buoy in Curtis Creek. Their boat was split wide open, and they were tossed out. With the weight relieved, the boat kept its bow out of the water and ran around in circles without sinking. The boys, both without life jackets, managed to stay afloat in the cold water until we rescued them. After we got them to the Sick Bay and warmed up, and in dry clothes, we sent them home by car. How much better to send them back alive than to have had to call their parents to come down and claim the bodies! The margin between these two possibilities was a razor's edge! That razor's edge being that a Coast Guard patrol boat happened to be within sight and that its crew members happened to be alert, and just happened to know and do their jobs promptly.

I've tossed "just happened" around quite a bit. But every one of us knows that things don't just happen; they are caused. The patrol boat was built only a few hundred yards from the place of the rescue. Boats from our Yard are in service everywhere the Coast Guard operates, and that's a pretty big patch of the globe. But let's see how we got that way, what caused our growth, what made it happen.

Quite early in our country's history, the need for a sea rescue agency was recognized. The Revenue Marine cutters already at sea just happened to be doing the job within their limitations, hence it was logical for Congress to add this duty officially, increase the size of the fleet, and bestow on it a new name, Revenue Cutter Service. There was a great deal more sea traffic, relatively speaking, then than today, as roads were few and automobiles not yet invented. It was also still in the age without communication beyond sighting distance. First, privately and then publicly supported watching and lifeboat stations dotted the coasts. Frequently, cooperation between the on-shore and at-sea activities was needed. Thus in 1915 to the dedicated, hard corps officers of the Revenue Cutter Service, Congress passed the responsibilities and facilities of the Life Saving Service under the new name, Coast Guard. World War I and the rum running years which followed brought complete integration of the two branches. There was some duplication in watching and much cooperative helpfulness between the Lighthouse Service and the Coast Guard, so much so that in 1939 Congress transferred the entire aids-to-navigation functions to us.

By the start of World War II we had become known, by diligent application, as watch dogs of the sea and had long advocated an educational and preventative program to lessen marine tragedies. Congress again acknowledged and rewarded our demonstrated performance by transferring to our management the Bureau of Marine Inspection and Navigation and its personnel.

While joining forces with an under the Navy for the duration of the war, we were permitted to operate without significant loss of autonomy, a tribute to our integrity. Our abilities were proven on many fronts at home and abroad. Even in our expanded state, we just happened to be able to uphold our tradition for doing a good job!

We are one military service which has not been caught in the race for space, nor do we stock atomic warheads. Our business is very much down to earth and we pursue it with conventional equipment. What another war will bring, I can't even guess, but with the Navy's continuing support, I'm sure we'll be geared to fight alongside with what we've got, or what they give us, and you can bet it will just happen that we'll do a good job.

And so here you have the tree that is the Coast Guard of today. The Life Saving Service, Lighthouse Service and Bureau of Marine Inspection and Navigation were grafted onto the trunk of the original Revenue Marine. In each case the addition was based on relevant factors and not on whim or favoritism. Therefore, the grafts "took and our tree is flourishing, still infused with the indomitable spirit traditional to the seamen of yesterday. I think one of the reasons we are able to continuously command the services of so many able people for our varied tasks is that, in peace or war, the Coast Guard's work is purposeful and not for some vague future, but immediately gratifying. It just happens to work out that enough of its members become dedicated to carry along the rest who don't.

Perhaps you would like to hear how Congress finally codified the Coast Guard's duties in 1949. Title 14, U. S. Code reads as follows:

"The Coast Guard shall enforce or assist in the enforcement of all applicable Federal laws upon the high seas and waters subject to the jurisdiction of the United States;

Shall administer laws and promulgate and enforce regulations for the promotion of safety of life and property on the high seas and on waters subject to the jurisdiction of the United States covering all matters not specifically delegated by law to some other executive department;

Shall develop, establish, maintain, and operate, with due regard to the requirements of national defense, aids to maritime navigation, ice-breaking facilities, and rescue facilities for the promotion of safety on and over the high seas and waters subject to the jurisdiction of the United States;

And shall maintain a state of readiness to function as a specialized service in the Navy in time of war."

If I were to break each one of these down and give you a blow by blow description of how we do it, I am sure you would find me hopelessly boring. Besides, we only have a few minutes together. If you want details, you can read all you want without budging from your own firesides. Our big, continuously recurrent problem is not one of facilities or even finances, but of dealing with people. And so, from here on out I'm going to talk mostly about our people and while I'm doing it, you can look me over as exhibit "A". Now, don't get me wrong. I'm no prototype nor do I purport to speak for some 35,000 coast guardsmen. I'm just me and I speak for myself. But it just happens a lot of the Coast Guard has rubbed off on me in 36 1/2 years. You be the judge.

When my kids were small, we had a good sized dog named Timbo. He was an energetic dog-about-town and had a mind of his own. One summer morning before breakfast, I looked out of the upstairs window and saw Vernon, Jr., aged about five, going up the back hill holding on to the dog's collar. I called out, "Where are you taking Timbo?"

When Timbo heard my voice, he wheeled around and started back to the house as fast as he could drag Vernon, who was hanging on for dear life. Timbo sat down just short of the back door, sweeping up two small clouds of dust with his fast wagging brush while waiting for me to appear.

I repeated my question, "Where were you taking him?" Again, hearing my voice, Timbo got up and headed this time for the front door with little Vernon still hanging on. But I heard the reply from the side of the house, "I'm taking him where he wants to go first!"

Like most senior officers, I would like to take credit for leading the way, but the fact is, and this is also like most others, except in a few activities, I have often been short of breath in just keeping up.

People like to be told what they already know; they like to do what they are already doing. They hate change when things are going smoothly, and, strangely enough, sometimes when they are not. Popularity is assured the leader who understands this. But, heaven help the one who tries to get new ideas across. A leader ahead of his time must endure ridicule and scorn and must fight outright opposition every inch of the way in gaining his following. He has to be bigger than the dog to do it. This is true leadership and yet, even after final acceptance, such a one seldom obtains the fame, at least not universal, pleasant fame, of one who happened to be at the dog's collar when it was headed for some place it wanted to go first. This is true in the simple situations of the home all the way up to world shaking events history has recorded, and which are taking place around us right now. It's true in the Coast Guard, too.

In line with telling you what you already know, I'm sure you all are aware that most of our government bureaus have obtained near perfect organizations by functions and assigned areas of authority. They are, for the most part, quite mature. Still, changes are in progress and even demanded because many individuals who occupy the well ordered posts do not quite measure up to expectancy. Thus it is possible to have a high order of success in organization and at the same time a lesser order of performance.

There are a number of reasons for this less than optimum performance. In Government, the principal reason seems to be that so much emphasis has been placed on security-in-job for the individual that, having attained it, he is also fenced in by it. He drops into a well worn groove which may even look attractive at first, but just as often turns out to be an endless groove which gets him nowhere in particular. He settles down to a lifetime of performance and finds, because of the security inherent in protection-for-all-under-the-law scheme of things, his performance needs be no better than mediocre. A "satisfactory" rating will keep him employed for a working lifetime.

The Coast Guard is hardly unique in this, but over the years it has been policy and, in general, a reasonably well implemented policy to try to inspire and train its personnel not only for better performance in the present job, but in attaining qualification for jobs of greater responsibilities and difficulty. It has also found out from experience that the training must be according to its own style and methods in order to secure performance in keeping with the desired pattern. To this end, to acquire officers, we operate the Coast Guard Academy at New London, Conn. for suitably qualified but untrained young entrants, and the Reserve Training Center at Yorktown, Va. for college graduates and promising enlisted men already in service. First enlistees pass through basic training in one of two centers, Cape May, N.J. or Alameda, Calif. Officers and enlisted men must take some, and may take a great variety of correspondence courses, tuition free. Graduate training is offered to many officers at military and/or private colleges. Enlisted men are given advanced resident training in service and other schools.

While all this may sound like "teaching by the numbers" and "following the party line", it really is quite varied and purposely so to promote initiative and leadership. In all training after the initial period, the officer or man is on his own. This enables him to break out of his bounds if he is able and go on to earned advancement.

The civilians, which augment our military staffs in many shore establishments, receive less extensive training at government expense, but they are not neglected. For instance, at the YARD, we have four-year apprentice courses in a number of trades. We also pick up the tuition tab for quite a number of voluntary night school attendees. We have a full time instructor who gives a wide variety of training, all of which is during paid working time. We have found it's not so much, how can we affort it? but, how can we affort to do without it? It is another one of those things which has not just happened but has been caused by our leadership and it is service-wide, for the variety of our duties demands an extraordinary amount of training.

That the Coast Guard is achieving success in performance as well as in organization is well documented and it just happens I don't mind bragging a little about it.

After World War I the peace scare caused the decommissioning of most of the Navy's ships and the Navy yards were starved for work, hence were very glad to have Coast Guard patronage. But the cost was high and, as a young officer, I was incensed by the cost in relation to what we got. In the winter of 1930-31, the overhead for the Copper Shop at the New York Navy Yard was 256%. I had watched the workman patch and then wipe in a new lead lining in our main injection line. It didn't seem like too much of a job to me -- it didn't take long and it didn't seem difficult. But when the cost return came in, it put my accounts in the red and I saw red and hot-footed it up to the Industrial Manager. He left his comfortable office and took me down to see the shop master. It was real nippy outside. "This ought to cool you down a bit", he said as we shuffled through the snow. The master of the Pipe Shop took us out on the floor to watch a big job with a half dozen torches roaring, and it was impossible to talk. When we got back to his dingy office, he said, "Why, young man, the coppersmith's art is next to a silversmith." "So I see from the cost, and that's what I'm kicking about." Our interview was nonproductive. My kicking got me nowhere, for the price stood. But I learned something. The 100% was for the materials and labor and the 256% was for knowing how. I also learned that you can't beat the system when you are a captive customer.

Armed with some thirty years experience as both customer and manager, I have recently had an opportunity in our own Yard to fight the system and have had a measure of success in beating it for the captive customers' benefit. And do you know who has been my right hand man? You've guessed it -- the comptroller. When I got in a duel with my production people, it was the comptroller who handed me the best weapon at the right time.

But it hasn't always been that way, in fact we haven't even had comptrollers very long -- just accountants who told you where you'd been, and mostly that you'd missed the boat. Today, managers are getting a lot of help -- cost time tables so they can make the boat, even anticipate it. It just happens I give my comptroller credit for being part of the management team, and I'll tell you why.

Several years ago I was engineer officer on one of our destroyers. Our job was to chase rum runners and keep the price of whiskey so high that the game was profitable for those who were set up in business ashore and at sea. On this particular afternoon, the skipper and the exec. were planning their tactics for the night's operation. As the next senior and as a staff officer, I was sitting in. The skipper finally turned to me and said, "Day, I want to make thirty knots and I want all four boilers." With my usual eye to economy, for this was during the depression, and things were tight money-wise -- we even tore up our own undershirts for wiping rags -- I replied, "Yes, sir, but we can give you that speed easily with three boilers, and, in fact, if we leave an hour earlier, we can be there at the same time on two boilers at twenty-eight and a half.' He scowled, cleared his throat, and then cut loose. This is not the place to quote his exact language, but the polite version ran something like this, "Young man, when I want your advice on how to run my ship, I will ask for it, and until I do, you keep quiet! Now get out of here; I don't like your eavesdropping anyway!" He belonged to the old "line officer" school. From the first, he had been taught and never even considered there was any other attitude for a person in his position except: "Let there be light, and there was light."

A lot of businesses and, as we all know, some military establishments have been run that way in times past. One thing I will say for the system, it got things done. How much it cost was another matter. In fact, no one knew, and it didn't pay to be too inquisitive, either. But time marches on.

Others besides me have suffered stinging rebukes when the fine information their diligence has produced has been rejected. In the last few years there has been an improvement in management attitudes all around, making it easier for the staff officer to be accorded a place at the planning table and less likely to be run out of the wardroom upon an offer of economy. However, let it be remembered, the comptroller is still a staff man, and he must be careful not to usurp the line function of the manager. He should hang on to the dog's collar, but not pull too hard and certainly not back. I think, of all the comments I might make on how to get along, none could exceed in importance this fact of life: the necessity to recognize who is boss. To him who has the final responsibility must go the final authority. His decision is over-riding, and comptrollers, as well an engineer officers, must early learn this lesson, and remember it late. The boss still remains the boss when the chips are down.

That reminds me of another incident in my brash young life. This time I was navigator, and as was customary, I brought the navigator's notebook to the skipper every morning, or left it on his desk if he wasn't up. On this occasion, I had made an entry "experienced a set of three knots". I was in the middle of my breakfast when the messenger burst in. "The Captain wants to see you right away!" As I stood shaking by his desk, He said, "Young man, your entry here is not correct. I have changed it to read, 'knots per hour'." "But sir, that would make it acceleration, because a knot is already a unit of speed." In utter disgust he said, "Go to my big dictionary and look it up." I did. "Here it is, sir...." "Just a minute, I'll tell you what it says!" And he then proceeded to outline that it was some fraction of the distance from the pole to the equator, etc. "I'm sorry, sir, but that is not what it says here. Here it is under: 'Naut. A unit of speed, a nautical mile per hour.'" "What, you mean to tell me it says that? Why, what did he know about going to sea? He probably never saw the ocean! From now on you will use knots per hour." "Yes, sir!" and as I got out of the cabin as quickly as I could, I didn't know whether to laugh or cry. I felt like both. I was as confused as if I'd just come out of a comptroller's conference. But, one thing I was on my way to learning: right or wrong, the boss is always right. Maturity and a change of position have taught me another thing: it pays not to cut your advisors off too short; they might be right, yes, even if they happen to be young men from the Comptroller's Division. They might just happen to be able to help us old "fuddy-duddies" away from our trained capacity to overlook what we do not wish to see or command silence when we disagree. Someone state it: "Don't confuse me with the facts -- my mind's made up!"

I really like that one, don't you?

I spoke about the boss always being right and that's true when he's your boss, but may not be true for others outside his direct control. In younger days the YARD was known as the Depot and business was less formalized than now. A mule was part of the complement and, of course, he had a stable. The bill for his hay and bedding was a regular, if not very large, item in the expense account. One skipper bought a pony for his children and what was more reasonable than to keep it in the stable with the mule? Who could object? And even if they did, it was the skipper's pony and if he wanted to keep it there he could!

All went well until those mean, picky, financial management men, the auditors, noticed the mule was costing twice as much as previously. After the investigation, the embarrassed

skipper had to pay half the back stable bill and continue paying half as long as he had the pony.

Not all un-economies are so easily detected or so amicably settled, but the point I wish to make is this: had someone on the staff suggested to the old time skipper the error of his way, he would certainly have been told off with a lion's roar. Yet, before the auditors, facts in hand, and not subject to his command, the lion was meek as a lamb.

He may not always like it and, being human, he may dish out some abuse but, believe me, the boss needs men on his staff who will tell him when he's wrong. How important it is to do what is right before it is forced upon us! Those who try to make the boss happy by agreeing with him, the apple polishers and the yes-men, are no asset. The help him get into trouble. The way to help him out of trouble and keep him happy is by offering solution to his problems. Note: I said solutions, not criticisms of his decisions. There is a difference, and the result of that difference, so far as you are concerned, is that you may get thanked for one but are certain to be blasted for the other. The skills for this accomplishment are not easy to come by. A lot of climbing is required but there is no rung on the management ladder where you can't profit from this advice. When you get near the top of the ladder, you have to do more than just win the good will and confidence of your immediate subordinates. You have to keep them functioning with enough togetherness that your planned operations will succeed.

And that reminds me of a picture I just happened to see when I was a boy, and the impression is still vivid after nearly fifty years! It showed four natives leading a snarling, black leopard out of the jungle, where he had been trapped. Each was at a respectable distance from those wicked teeth and claws at the end of a line leading to his collar. How they got the collar on him I don't know, but they did, and they also knew that it was not a one-man job. Their success in leading him safely where they wanted him to go depended upon their combined efforts to keep their lines taught while walking in the same direction.

I like to think of management leadership in the Coast Guard as more like the pattern of the natives with the leopard than of the little boy with the big dog. In carrying out the analogy, you might call the very functional tethers: operational, engineering, comptroller and the executive direction of the Commandant, who keeps the movement in unison towards established goals and not, repeat not, where the animal wants to go first. To say there are just four lines is not strictly accurate, and may be slighting some others, but the point that is of most interest to you is that, in contrast to a few years ago, the comptrollers are permitted a firm hold on one of the leashes. Time has not permitted me to be specific about their accomplishments, but in spite of lack of further proof, I'm sure you'll all agree that sharing management responsibility with the comptrollers just happens to indicate nicely our progress. The same cooperative pattern is repeated at the several organizational levels, down to within individual commands. The Coast Guard has demonstrated that it just happens to work out very well, and it also just happens to work out best when each responsible person keeps a taught line in his job performance. I'm proud to be a part of our progress and especially glad I just happened to have the opportunity to speak to you about it.

* * * * * *

Honorable mention is always accorded the first registeration, this year, that of Colonel E. H. McCarter of the Hampton Roads Chapter.

At the business meeting of the official delegates to the convention, the following were elected for the ensuing year:

National Officers

Brig. Gen. H. Nickerson, Jr., USMC - President
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A Convention Dinner Meeting was held in the evening at the Officers Club, Crystal Room of the Naval Weapons Plant with a hospitality hour at 1830, dinner at 1930, climaxed with an address "What is our business" by Rear Admiral Lot Ensey, Deputy Comptroller of the Navy. Thus, we closed another successful year for the American Society of Military Comptrollers.

IMPROVEMENTS IN THE FINANCIAL SYSTEM FOR PROCUREMENT AND PRODUCTION

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The Department of Defense is now engaged in formulating and directing the execution of a complete program for improvements in its financial systems.

Many improvements in the financial systems have been made in recent years under Title IV of the National Security Act, but much remains to be done.

The first step being taken to complete the program is the development and coordination of acceptable principles and policies to meet the required objectives. This has been almost accomplished for operation-and-maintenance programs; similar work in the military construction program is not far behind. We are still studying the areas of procurement and production and research and development—each of these is a separately-managed area having its own unique problems.

This discussion with respect to the area of procurement and production does not reflect, therefore, the coordinated, agreed views of the Department of Defense, and the other agencies. However, many elements of this program have been established so that the problem is largely one of considering a few additional elements and integrating all elements into one system.

What is the area of procurement and production

Procurement-and-production programs are those which cover the planning, financing, management, and acquisition of ships, aircraft, missiles, and combat vehicles, and all other major items of materiel. Industrial equipment, such as machine tools, is included; also construction of facilities at contractors' plants in special circumstances when they are required to be financed by the government. These programs are centrally managed in each military department.

In financial terms, this is the area of capital expenditures, excluding the acquisition and construction of military real property, and certain other minor capital expenditures which are financed under other appropriated funds.

The procurement-and-production programs are financed by separate appropriations to the respective military departments.

Consumable materiel should be financed separately under revolving funds called "stock funds", and not under appropriated funds for capital expenditures. By "consumable materiel" is meant items which are considered expended upon withdrawal from stock. Such materiel includes repair parts, but not major components such as aircraft engines, electronic "black-boxes", and ship propeller-shafts. These major components are properly financed under the procurement appropriations.

It is controversial whether purchases of repair parts should be financed under stock funds when they are bought concurrently with the end-items. There is some merit in the view that in such case, as a practical matter, the repair parts should be procured under the same appropriation as the related end-items.

BUDGETS

Bases of budgeting

The program for improvements in the financial system for procurement naturally starts with cost-based budgeting. Let us consider what this means. Not much has been said yet on the application of this basis of budgeting to procurement, and what has been said is generally not designed to meet the management needs of the Department of Defense.

First, let us commence with the idea that a cost-based budget for this area means a program for end-items for which procurement is to be started in a fiscal year, in terms of quantity of each item, estimated unit-cost price, and total cost. Of course, there are many minor items; these need not be itemized; they may be budgeted in group totals by class of materiel. This is primarily how the program is planned, and how basic procurement decisions are made. This is how the program is justified to the Congress. This is the basis of program authorization and approval through the appropriation process.

Note that this primary budget is for the full cost of the end-items. In an exceptional case, a departure from this principle may be authorized; the budget may include only the cost of "advance components"—not the full cost of the end-item. For example, such an exception might be made for the long lead-time components of a new type of aircraft pending final decision to produce the aircraft; in this case, possible loss in event of a negative decision is a calculated risk outweighed by the time advantage if the final decision is favorable. However, we do not always buy end-items. In the case of complex military equipment, we generally buy components separately.

For example, the Air Force does not buy B-52 bombers complete. It buys separately B-52 airframes, jet-propulsion units, electronic equipment, etc. Spare components are bought to meet maintenance requirements, but these are considered as separate items for purposes of programming and budgeting.

After review of the cost-based budget by the Appropriations Committees, the Congress grants additional obligational authority each year through an appropriation for the total cost of the addition to the program. This appropriation is an increment to the remainder of the appropriation authority received in previous years.

Procurement appropriations are more than the obligations which will be incurred in the budget-year for the additional authorized program started in that year. This is particularly because contracts for some components, having a shorter lead-time than other components of the same end-items, will be placed in future years. In addition contracts placed will be ammended in the future for engineering changes. And there also may be unavoidable delays in contracting for some items. Therefore, each year there is a carry-over balance of unused obligational authority from prior appropriations to cover obligations to be incurred in the future to complete the authorized programs.

While appropriation budgets for procurement are already on a cost-basis, they would be more complete if they included the remainder of prior-years' programs still in process of procurement in terms of end-items undelivered at currently estimated cost. And such budgets might well relate the total estimated cost of the program still in process of procurement at the end of the last fiscal year to the cost of the work in process, as well as to the status of appropriated funds in terms of obligations, commitments, and amounts required to complete the program (which data are currently presented).

As you can see, this possible amplification of the budget to cover the remainder of the prior authorized programs would be only an extension of the present appropriation-budget practice. It would not be revolutionary.

Now let us consider what a cost-based budget for procurement is <u>not</u>.

First, as we have seen a cost-based budget is not a budget for obligations to be incurred in the budget-year—it is more than that—it covers obligations to be incurred beyond that year. However, for fiscal purposes, we must still have a budget for obligations to be incurred during the budget-year for the total program, including the remainder of the part authorized and appropriated for in prior years. But this obligation budget need not be determined by end-items—it may be estimated by category of materiel to be procured.

Second, the cost budget is not a budget by fiscal year for the cost of end-items to be delivered in that year. However, that does not prevent presentation of a supplementary time-phased schedule of deliveries by fiscal year into the future—even beyond the budget year. Such a delivery schedule would be useful to management, although secondary. For program control, emphasis must be placed upon presentation, review, and authorization of the entire program before it is started, and for the period it is to be started—not delivered.

Third, a cost-based budget for procurement is not in terms of estimated expenditures by fiscal year—either accrued expenditures or cash disbursements. Expenditures under most major contracts are in terms of progress payments—not in terms of cost of items delivered. In other words, although it is true that accrued expenditures for a fiscal period measure costs that actually have been incurred during the period, these costs generally cannot be directly related to items procurred for most of our procurement.

There must be budgeting for expenditures, because of the government-wide effect of the programs on the annual Treasury cash requirements. The rate of expenditures must be controlled. And this also requires that the initial budgets in terms of costs and obligations should be established upon a basis which will be consistent with the expenditure objectives.

At this point it may be mentioned that the newly proposed system of statutory control over annual accrued expenditures, by Congressional limitation, would be a rigid, second fund-control. The first and primary control would still be in terms of full cost of the program to be undertaken through appropriation authority for obligations. If we have the two kinds of limitations, they should be harmonious—the accrued-expenditure limitation representing only a time-phasing of the total authorized program—the total program being fixed with the objective of meeting the expenditure targets. If the Congress might desire at any time to cut-back prior-years' authorized programs, it should still rescind appropriations in terms of procurement authority—not merely make the previous appropriation authority ineffective by creating a conflicting lower expenditure-limitation.

In summary, we must recognize the necessity for budgeting on several different bases for each fiscal year:

1) Full cost of acquisition of end-items for which procurement is proposed.

2) Time-phased schedules of deliveries of the entire program by fiscal year.

3) Obligations to be incurred for the fiscal year.

4) Expenditures for the fiscal year—either accrued expenditures or cash disbursements.

However, only our primary cost-based budgets need be detailed in terms of end-items. The others may be projected therefrom in terms of summary classifications.

Operating budgets and funding

In every appropriation area, it is an accepted principle that funding should be based upon operating budgets. Funding in a broader sense includes apportionments of appropriated funds by the Bureau of the Budget, in participation with the Office of Secretary of Defense, as well as allocations and allotments within the military departments.

As you know, the act of funding provides the administrative authority to commit and obligate as well as expend as appropriated fund.

An operating budget submitted to the Office of Secretary of Defense and Bureau of the Budget, as a basis for apportionment, should represent a resonably firm program. As compared with the original budget supporting the appropriation request, changes must be made to reflect Congressional action in connection with the appropriation. Other changes may be required, but if significant, they should be cleared with the appropriations Committees, subject to the conditions of the understanding with them on reprogramming.

Further changes in the items in the operating budgets for procurement may be permitted during the fiscal year, subject to approval of the Office of Secretary of Defense and the Bureau of the Budget, as well as the Appropriations Committees, based upon the understanding with respect to reprogramming action.

Budget-account structure

The budget-account structure for the operating budget for procurement should be two-phased.

First, the account structure should be designed as a basis for grouping of end-item budget estimates on a full-cost basis. Second, the account structure should be designed as a basis for procurement administration and accounting for the use of the appropriate funds, in such terms as obligations and expenditures for groups of the things we buy — which, as we have seen may be different from the end-items.

The operating budget must show budget estimates upon both these bases.

Vizualize, if you will, a two dimensional chart for presenting the operating budget upon the two bases for the new-year's addition to the program.

In the stub and first column, the budget would be shown in terms of total costs by categories of the end-items—the same type of data shown in the appropriation budget. For example: B-52's and related spares would be shown under the heading of "aircraft and related procurement" as follows:

Aircraft complete:
  Bombers -
    B-52 bombers
Airframe components:
  Bomber-airframe components -
    B-52 airframe components
Power plants and components
  Jet engines and components
    J-XX engines and components
Armament components
Communication-electronic components
  Etc.

In the other columns of the chart, the cost of complete aircraft would be broken down by airframes and components, and such costs grouped with the costs of the related spares, as follows:

Airframes and components
  Bomber airframes and components
    B-52 airframes and components
Power plants and components
  Jet engines and components
    J-xx engines and components
Armament components
Communication- electronic components
  Etc.

In designing the budget accounts, minor components should be grouped with the related major components (e.g., airframe components with airframes; jet-engine components with jet engines). This would permit generally a single budget-account citation in each contract; greatly simplify fund accounting for obligations and expenditures; facilitate contractors' accounting and billing; and result in more meaningful data on expenditures and unpaid obligations.

Thus, the second-dimension of the chart provides the data on fund requirements in terms of the categories of things to be separately bought—categories which may be used in procurement administration and fund accounting. The end-item categories would be useless for these purposes, because it is impracticable to identify separately in contracts and accounts the commitments, obligations, and expenditures for the respective components with the end-items for complete aircraft and spares. In some

cases, there is an additional complication—for example a given type of engine may be bought for two or more types of aircraft, and it is impracticable to identify them separately in the contracts and accounts.

Adjustments of operating budgets to fund requirements

Fund requirements for new additions to a procurement program are generally equal to the total budget at cost. An exception should be made in any case where for some reason there are on hand, in stock, excessive quantities of applicable components, after considering the quantities needed to complete previously authorized programs and meet the requirements of the supply system for stockage of spares. In such a case, a reduction of the total budget-estimate should be made for the cost of available components. A similar adjustment of the budget estimate for an end-item should be made for the cost of components budgeted previously in advance when that exceptional practice has been followed.

It is a general objective, however, to keep inventories of components in balance with program requirements through balanced procurements of components for end-item needs plus spare-component needs.

Appropriation reimbursements

Each military department receives reimbursements to its appropriated funds for procurement to make it whole for sales of its own stocks, or for use of its own funds to buy and deliver materiel to other military departments and to the Military Assistance Program.

The Military Assistance Program (MAP) as a whole is operated upon the basis of reimbursable orders to the respective military departments. There is also an extensive use of interdepartmental orders (MIPR's) for common items by each of the military departments to each other military department which has an assignment to conduct coordinated procurement for all elements of the Department of Defense in a designated materiel area.

Preferably, an interdepartmental order for materiel which cannot be furnished from stock should be the subject of purchase contract by the procuring service, simply as an agent for the ordering service. This simplifies accounting and avoids involvement of the funds of the procuring service. The ordering service receives delivery from and pays the vendor. Or if the procuring agency makes payment, it charges the ordering agency. No reimbursements are required. But this "direct-citation" method of procurement is feasible only under the following conditions:

1) A separate purchase contract will be placed solely for the requirement of the respective ordering agency, or

2) If there is a combined purchase contract for two or more agencies, all of the following conditions should exist with respect to the items procured for other agencies:

a) The items are end-items and no assembly of components is required.

b) The items are purchased on a firm fixed-price basis.

c) The vendor will bill and require payment only upon delivery—no progress payments.

But there is an extensive area where these conditions do not all exist and it is still desirable to pool requirements of two or more agencies in single purchase contracts. In these cases, for example:

1) The items procured for other agencies may be only components of end-items to be delivered for assembly to the procuring agency, or to another one of its contractors. And after delivery the procuring agency must bill the ordering agency for the total cost of the end-item.

2) The contract may be priced on a cost-reimbursement basis, or it may have a price-revision clause.

3) Or the contract may call for advance payments, progress payments, or reimbursements for costs incurred by the contractor.

Under these conditions, the simplest method of procurement is for the procuring agency to buy its customers' requirements under citation of its own appropriated fund, make payments to vendors, and obtain reimbursement at cost from customers upon delivery. We call this method "consolidated procurement." These two methods of coordinated procurement have been prescribed by Department of Defense directive for use under the criteria set forth above.

In order to have obligational authority in advance to cover placement of contracts, the procuring agency is authorized to anticipate reimbursements based upon its customers' orders at full cost of the end-items. The customers' orders, of course, must be valid obligations under their funds, or in the case of MAP orders, valid reservations of funds as otherwise specifically authorized.

If customers' orders were solely for consolidated procurement, or for sales from stock which should be replenished, there should be automatic apportionment authority to a military department to incur additional obligations, without specific budget justification. But this is not

always the condition. In some cases, sales are made from stocks in long supply which need not be replenished. In such cases, the reimbursements should not be made available for obligation, or if made available, it should be to meet valid requirements for other items in lieu of requesting appropriations. This mixture of conditions has caused the Bureau of the Budget and Office of Secretary of Defense to specifically apportion reimbursements to procurement appropriations, in order to screen the justification for the replenishment of sales from stock of major end-items, or justify other alternative use of the proceeds. This aspect of apportionment has been somewhat troublesome, but we confidently expect to find a simple solution to the problem.

As a general rule, all issues of equipment and major components for use within a military department are without charge to the budgets and funds of the using activities. Distribution is controlled in terms of physical quantities; tables of equipment allowances are one device.

However, where common items of materiel acquired under procurement appropriations are withdrawn from stock for use under other programs financed be specific appropriations, reimbursement should be made to the procurement appropriations, just as in the case of sales from stock to another military department. Examples are:

1) Components used in assembly of equipment in process of development for purposes of test and evaluation—chargeable to research-and-development appropriations.

2) Repair parts used in maintenance of materiel (if acquired under procurement appropriations rather than stock funds)—chargeable to (a) industrial funds which finance shipyards, arsenals, and major overhaul shops, and (b) operation-and-maintenance appropriations which finance other maintenance activities.

Fund allocations and allotments

Public Law 863 requires that fund subdivisions should be simplified. It states that, as an objective, there should be no more than one allotment to any operating unit from each appropriated fund under which its operations are financed. It is desirable, in fund control, that more reliance be placed upon a good operating budget currently revised from time to time during the fiscal year, with appropriate approvals at higher levels. For this purpose Public Law 863 also requires funding to be based upon operating budgets.

Keys to improved funding practices consist in firm programming, maintenance of good budgets, good reprogramming practices, good and timely accounting and faithful adherence to current approved budgets within close limits, but without absolute fiscal limitations by items. In other words costs of some items may be exceeded within reasonable limits, if others are reduced. But the total budget or fund limitation may not be exceeded. In this connection, an important Department of Defense directive provides, in effect, that no departmental official may initiate new procurement of any end-item or component thereof, unless there are funds available in an amount adequate to complete procurement of the end-item, as well as all other end-items then in process of procurement, based upon current cost estimates. Where components are separately budgeted, they would be treated as separate end-items. Certain exceptions are allowed. This requirement is necessary in order to be consistent with the basis of procurement authority granted by Congressional appropriations.

Each military department is organized differently for management and administration of its procurement programs. Generally, these programs are managed in the Army technical services, Navy bureaus, the Marine Corps Quartermaster General's Office, and the Air Materiel Command of Air Force, subject to a varying degree of higher level, supervision and control. These agencies, in turn, are each organized differently. Some operate on a more decentralized basis than others.

At least, as an objective, it may be said that each of the responsible operating agencies should have only one allocation from each appropriated fund for procurement, and that each of its procurement offices, as an operating unit, should have only one allotment covering the segment of procurement it administers from each of such fund allocations. In cases where there are intermediate commands, such as the Army Ordnance Tank Automotive Command, intermediate fund-suballocations should be made thereto. The principle of funding, based upon operating budgets, in the chain of command or management should be observed.

The fund allocations to each operating agency should be kept in agreement with the total amount of the current revised operating budget for its segment of the procurement program.

However, in the procurement area, no operating budgets are prepared below the level of operating-agencies or intermediate operating agencies. Instead procurement-directives are handed down by the operating agency (and also by intermediate operating agencies where they exist). Hence, each operating unit responsible for contracting and contract administration has a series of active procurement-directives which,

in effect, constitute and operating budget. The allotment to each operating unit should be increased on an incremental basis as additional procurement-directives are issued. And timely allotment adjustments should be made as cost estimates in the procurement-directives are revised.

In some cases, a field activity may be responsible only for contract administration—not for contracting. In some of these cases, it may be workable to have the allotment maintained at the organizational level responsible for contracting, based in part upon transactions reported by the field activity. In other cases, it may be more workable to give a suballotment to the field activity, covering the contracts it administers, with formal allotment reporting.

In exceptional cases, there may be more than one allotment required to a field procurement office although there is only one procurement appropriation. For example, each of the fourteen Army-Ordnance district-procurement-offices would have a separate bulk allotment from each Ordnance commodity command, such as OTAC. In this case, funding follows the line of management authority which is different than the line of command.

Suballotments for individual orders for components by one operating unit to another within the same agency or military department should be avoided for the sake of simplicity. These sub-orders are fairly common, based upon specific responsibility assignments. Such orders may be performed on either the direct-citation method or the consolidated-procurement method—whichever method would be appropriate if the order were an interdepartmental order. Heretofore, there has been a tradition that reimbursements should not be made from one activity to another when both are financed by the same appropriation, notwithstanding that such a practice is and was lawful—this forced undesirable lateral suballotments and citations of funds. This practice is being corrected.

The objectives stated above for minimizing the number of fund subdivisions should be understood to be dependent upon the existence of firm approved programs, executed within reasonably close limits in relation to estimated cost. Until and except as this condition is brought about, it would be required that there be subordinate obligation limitations under all fund subdivisions in terms of the major budget accounts (materiel categories).

ACCOUNTING

The defense accounting system for procurement must necessarily conform to the requirements of Congressional control and the system of management of the procurement program, including the methods of budgeting, funding and financial reporting.

As procurement is a separately managed and financed program it must be accounted for at all levels separately from all other program areas. This is consistent with the legal fact that each appropriated fund is an independent financial entity and, therefore, must be separately accounted for.

Fund Accounting

Each operating agency must account to the departmental level for the use of its allocation from each appropriated fund for procurement, as though it were a complete separate fund. And each operating unit must similarly account to the operating agency (or intermediate operating agency) to which it is responsible, for the use of each of its allotments as though it were a complete separate fund. As we have seen, the number of these fund-subdivisions would be minimized; except as there are special organizational relationships, each operating unit would have only one allotted fund for procurement.

Public Law 863 requires the establishment of the accrual basis of accounting for appropriated funds in conformity with the requirement for cost-based budgets. But the accrual basis of accounting must be established within the framework of a system of accounting for each appropriated fund and subdivision; fund accounting must not be impaired for (a) obligations and other fund reservations, (b) unfilled customers' orders which are anticipated as a fund resource, and (c) cash receipts and dispursements. These data are essential in program management.

It is also a primary principle of governmental accounting that each expendable fund (such as each appropriated fund and each subdivision thereof) should be accounted for in terms of obligations, and the balance available for obligation, in order that management may avoid overobligation of the fund and prevent overexpenditure. Consistent with this principle is the corollary principle that investments in property, resulting from fund expenditures, must be accounted for separately from the fund resources.

The fund resources, unpaid obligations, and available unobligated-balance of procurement appropriations at each organizational level should be accounted for in financial reports, when the accrual basis of accounting is employed, in terms of the following (to the extent applicable):

Fund resources:

Undisbursed balance in Treasury
Accounts receivable (for reimbursements earned and unapplied appropriation refunds)
Unfilled customers' orders
Other anticipated reimbursements for additional orders to be received during the fiscal year
Advances to contractors
Undistributed charges

Unpaid obligations:

Accounts payable
Contracts and orders outstanding

Unobligated balances

The foregoing accounts are a balanced group for each appropriated fund or subdivision thereof—the sum total of unpaid obligations and unobligated balances equals the total fund resources. When the balances of these accounts at any month-end are placed in a financial statement, as in Section 1311 reports, we have a balance sheet for the respective appropriated fund or fund-subdivision.

A brief discussion of principal refinements required in the fund-accounting system for procurement follows.

Reimbursement accounting

In order that each appropriated fund may show the full amount of expected available resources, to the end of the fiscal year, it is necessary to record anticipated reimbursements based upon estimated customers' orders to be received for the entire fiscal year (at cost). This fund resource account may be maintained only at the level of the military department for the appropriated fund as a whole, but it might appropriately be recorded in accounts of each operating agency for the segment of procurement for which it is responsible. However, this resource should not be actually available for obligation until and to the extent customers' orders are received, but an exception would be appropriate in the case of orders for delivery from stock of minor amounts.

As customers' orders are received, they should be recorded as "unfilled orders", and the account for anticipated orders to be received should be reduced. This fund resource should be maintained at the appropriate lower level having responsibility for management of this part of the procurement program.

Reimbursements should be recorded in "accounts receivable" as earned upon shipment of end-items to customers (at cost). This is the accrual basis of accounting for reimbursements. Generally billing to customers should coincide with delivery. The amounts earned should be recorded as "accounts receivable", and the "unfilled-order" account reduced.

Of course, as "accounts receivable" are collected, the cash receipts should be recorded as an increase in the Treasury balance.

Substantial efforts are required in refining accounting for reimbursements, including maintenance of continuing documentary support of "unfilled customers' orders" and "accounts receivable".

Obligation accounting

Obligation accounting should be at the allotment level.

When the accrual basis of accounting is employed, obligation accounting may be considered to be in three steps, as follows:

1) Recording the contract and orders placed (and amendments thereof) as obligations.

2) Recording accounts payable for the liquidation of contracts and orders based upon bills received for materiel delivered or for progress payments (or upon administrative determination of amounts due, if bills are delayed) — reducing equally the amounts outstanding under the contracts and orders. These are accrued expenditures. (This is an additional step required under the accrual basis of accounting.)

3) Recording the payment of accounts payable—the disbursements being a decrease of the Treasury balance.

Unpaid obligations at any time are the sum of "accounts payable" and "contracts and orders outstanding"; they will amount to the same in the aggregate as presently defined without application of the accrual basis of accounting.

While obligations incurred for the fiscal year to date are measured by the amounts of contracts and orders placed (and amendments thereof), they may be expressed also as the sum of:

Accrued expenditures for the fiscal period
Increase (+) or decrease (-) in contracts and orders outstanding (compared with the beginning of the fiscal period)

While must improvement has been made in accounting for obligations, more remains to be accomplished in maintenance of continuing documentary support for unpaid obligations, and in synchronizing the amounts of charges for liquidation with cash disbursements reported for the appropriated fund as a whole. For this purpose, an account, "undistributed charges",

should be used to hold disbursement charges in temporary suspense when they cannot be identified immediately with the obligating documents for recording as liquidations. And when accrued expenditures are recorded, the documentary support for unpaid obligations must be appropriately established for "accounts payable" as well as "contracts and orders outstanding".

In accounting for contract amendments and revisions, a new requirement has been established recently—namely, that net downward adjustments (or recoveries) of prior-years' obligations shall be reported as a source of available funds in the current year. These adjustments include price revisions, contract cut-backs and terminations, and net downward contract-adjustments due to change in scope. These recoveries may not be reobligated except pursuant to apportionment action; advance apportionment may be provided.

Advances to contractors

An advance to a contractor is distinguished from a "process payment" in that an advance is made to the contractor before he incurs expenditures. Generally, he is required to deposit the advance in a special bank account; frequent payments are made by the advancing agency to replenish this account based upon the contractor's disbursements therefrom.

Accrued expenditures, from the standpoint of the appropriated fund or subdivision under which advances are made, are measured in fact by the contractors' expenditures. The balance of the contract outstanding is reducible upon this basis—not when the advance is made. Accrued expenditures are so defined in present administrative regulations. However, the recent act, providing for a system of legal limitations on annual accrued expenditures, would redefine them to include contract advances—not the amounts expended therefrom. This difference is in process of resolution.

Accounting for changes in fund balance

Changes during the fiscal year in the unobligated balance of each appropriated fund or fund subdivision must be accounted for in financial reports, just as a business enterprise must account for the changes in its capital. But an accounting report for changes in an expendable fund is quite different than a profit-and-loss and surplus statement.

Changes in each fund balance for a fiscal period are required to be shown in a special statement (as in DD Form 1176, an approved modification of Standard Form 133 prescribed in Budget Circular A-34), as follows:

Sources of available funds -

Unobligated balance, beginning of fiscal year
*Appropriation for the fiscal year
Anticipated reimbursements -
Customers' orders received -
Reimbursements earned -
Increase (+) or decrease (-) in unfilled customers' orders
Additional orders anticipated to be received during the year.
Recoveries of prior years' obligations

Obligations incurred -

Accrued expenditures
Increase (+) or decrease (-) in contracts and orders outstanding (excluding recoveries of prior years' obligations)

Unobligated balance of funds available

(*)Substitute "Allocation" or "Allotment" below the departmental level.

The accounts shown above are generally described by accountants as "nominal accounts", because of their temporary character. They lose their identity after being closed out to the "unobligated balance" account.

Accounting for fund reservations

Making fund reservations from available fund balances for contracts and orders outstanding does not go far enough in providing current daily data on the amount of funds available for new procurement action. Bear in mind the defense-policy mandate that, except as may be specifically authorized to the contrary, no procurement of any end-item or component may be initiated, unless there are funds available in an amount adequate to complete procurement of the end-item, as well as all other end-items then in process of procurement. This means that no procurement directive should be issued, and no procurement program should be approved for action until there has been a check upon the sufficiency of available funds to carry it out. To answer the question of fund sufficiency, we must create reservations of unobligated funds to cover the cost of previous firm-program and procurement actions in advance of the obligations.

First, budget reserves must be established for amounts not authorized by apportionment action to be obligated. These include:

(a) Reservations for commitments in subsequent years to complete authorized programs (in the case of shipbuilding and aircraft and related equipment).

(b) Balance subject to future apportionment action.

Second, as we have seen, there must be a reservation for anticipated customers' orders to be received pending actual receipt.

Third, the Department of Defense requires a reservation of apportioned funds for commitments outstanding—"commitments outstanding" being defined substantially as the amount estimated to be required to cover the costs of all open procurement-directives for items not yet placed under contracts plus contingencies of price revisions and engineering changes under all contracts of outstanding (which contingencies may not be recorded legally as obligations).

Fourth, there should be an additional type of fund reservation which has not yet been directed—a reservation for completion of approved procurement programs in terms of cost of items not yet the subject of procurement directives. These items include shorter-lead-time components of end-items, for which procurement of some components has already been commenced; they also include end-items in the approved firm procurement-program where no components have yet been directed to be procured. When allotments are made and adjusted from time-to-time upon the basis of approved programs for action purposes, the uncommitted balances of the allotments automatically provide this type of reserve. This reserve moves to "commitments outstanding" as procurement directives are issued; and in turn the "reserve for commitments" moves to "contracts and orders outstanding" as obligations are incurred by contracts and contract-amendments. At the end of a fiscal year, this reserve is somewhat comparable to the apportionment-reserve for obligations to be incurred in subsequent years to complete the shipbuilding and aircraft programs—but, one is covered by apportionment, the other is not.

This fourth kind of reserve measures the availability of funds at anytime to cover the fiscal officer's certification of each procurement directive before commencement of action to place a contract.

The final unreserved balance of funds apportioned would provide a measure of fund availability to cover any additional end-items to be placed in a firm procurement program. This balance should be checked before final approval within a military department of any increment of the procurement program.

Provision for all of these fund-reserve accounts has been made already in DD Form 1176, "Report on Budget Status", required monthly for each appropriated fund.

Program accounting for funds

So far we have discussed fund accounting for procurement on an overall basis, with special attention to the continuous maintenance of data on procurement transactions and fund availability in totals for each appropriated fund and subdivision, including each fund allotment. But this is not detailed enough for program management, especially with minimization of the number of allotments.

Therefore, we should provide additional data on program performance, broken down in terms of materiel categories, and related to the total program. These data should be provided in a special monthly (or more frequent) report for the following:

Balance of uncommitted procurement program, beginning of fiscal year
Total procurement program approved for the fiscal year -
  For the department
  For orders from other agencies
Procurement directives issued (commitments)
Obligations incurred (contracts and orders placed)
Accrued expenditures
Balance at end of reporting period -
  Uncommitted program
  Commitments outstanding

These data are most important in measuring progress in terms of procurement actions taken and in indicating the remaining work to be accomplished, as well as providing a means of assurance that the program can be completed with available funds.

These data would be provided for each of the categories of materiel in terms of the things that are procured (components); it would not be feasible to provide the data in terms of end-items.

Later we shall discuss a supplemental statistical method of program accounting in terms of end-items.

These data should be provided from subsidiary accounts maintained by each operating unit in support of transactions summarized in its allotted-fund accounts and reports. The data with respect to the "total procurement program approved for the fiscal year" should agree with the latest approved operating budget (the "second dimension" of the budget previously described).

In the past, program accounting has generally had the additional feature of a breakdown of these data for each materiel category in terms of each fiscal year in which there was an addition to the program. This is called "program-year" accounting. It is troublesome and expensive to maintain, and it has no useful purpose that cannot be met more simply. We expect it to be abandoned, except that each program account should show the program-increments by fiscal year. Obligation and expenditure accounting by program-year would be eliminated, including requirements for separate fund-account citations in contracts and contractors' bills.

PROPERTY ACCOUNTING

Each military department should integrate its financial accounting for inventories of capital-type materiel with fund accounting for each procurement appropriation. Such property accounting is required both by Title IV of the National Security Act and Public Law 863.

The principal purposes to be served by this financial accounting for this property are as follows:

1) To provide accurate data with respect to inventories of materiel on hand and in transit for use in the determination of net end-items and component requirements planned for procurement (so-called "feed-back" data).

2) To provide accurate data with respect to the cost of end-items produced and delivered for use in end-item program accounting (which will be explained later).

3) To provide a means for determining the relation between the costs of end-items actually produced and the cost estimates used in budgets and fund administration; and to provide a means for correcting the estimates and assisting in assuring the maintenance of funds adequate to complete approved procurement programs.

4) To provide an additional means of assuring reimbursement for deliveries of materiel from production or stock to other ordering agencies.

5) To provide a means for effecting a high standard of accountability for inventories of materiel in depot storage, in transit, and in hands of contractors.

6) To provide data on losses of materiel for management use in minimizing losses.

7) To provide data for general reporting to the Congress on investments in property.

Integration of financial accounting for property with fund accounting requires attention to the following elements:

1) The system of property accounting should cover:

a) Inventory of materiel in the supply system.

b) Materiel in transit between activities within the supply system.

c) Materiel in transit from contractors when delivery has been made to the Government.

d) Components in hands of contractors (Government furnished materiel).

e) Unliquidated progress payments (i.e., unliquidated by delivery of materiel).

2) It is not necessary to maintain continuous accounting for inventories of all materiel in the hands of combat forces; under appropriate circumstances, such materiel may be the subject of periodic physical inventories and reporting as required under appropriate circumstances.

3) Inventories of components planned for use in production of end-items should be separately "ear-marked" in the accounts from stocks required to be maintained in the supply system.

4) Contractors should provide periodic data on the cost of end-items assembled and delivered, including not only the contract cost, but also the cost of components furnished by the procurement agency. These data should be used in recording the cost of end-items produced as well as the cost of components used.

5) The use of standard prices for recording inventory transactions, including liquidation of progress payments, based upon periodically-adjusted estimates of current acquisition-cost, is the only practical method of maintaining financial accounting for property. It is desirable that the same prices be used, so far as practicable, in pricing programs in budgets and in billing customers for deliveries of materiel. Actual cost variances should be reported in the property accounts.

6) The financial accounting for property must be in major segments corresponding to the separate appropriated funds which finance procurement. In addition, inventory accounts must be broken down for each major materiel-category used in supply management.

7) There must be a periodic accounting for changes in the total property investment in each major category of materiel in financial terms, such as:

Total property investment, beginning of fiscal year

Additions:

Accrued expenditures for the period (from the fund accounts)
Transfers of materiel from other agencies without charge
Revision of standard prices (net)
Purchase cost variance (net)
Inventory adjustments (net)

Deduction:

Issues from stock:

Reimbursable (equal to reimbursements earned in fund accounts)
Nonreimbursable
Revision of standard prices (net)
Purchase cost variance (net)
Inventory adjustments (net)
Losses

Total property investment, end of reporting period

END-ITEM PROGRAM ACCOUNTING

Continuous program accounting in terms of end-items programmed, delivered, and remainder in process (cost as well as quantities) should be useful in management of the procurement program. Data on the balance of each end-item funded and in process of procurement, as well as materiel on hand and in transit, must be available for use in the periodic determination of net requirements planned for additional procurement of principal end-items. Inasmuch as the data on end-items on hand and in process of procurement are inflated by the customers' equities in consolidated procurement, it is necessary, in determining net requirements, to make a reduction for each end-item by the amounts of customers' unfilled orders, as shown by the separate records therefor. "On-order" data is not enough. The amounts funded and in process of procurement may not yet be under contract. Moreover, "on-order" data cannot be ascertained in important areas where there is separate procurement of components.

Another important need for these data is for the presentation of part of the annual cost-based budgets for procurement—that part which covers completion of prior years' programs in terms of undelivered end-items.

These data also would be useful in the preparation of an annual report showing performance for the fiscal year in relation to the programs and budgets.

These program, budget, and reporting requirements cannot be met directly by our system of program accounting for funds, which is in terms of the things we buy, except for a relatively small area where end-items are each procured complete from contractors and billed upon delivery. For end-items, subject to separate procurement of components and assembly, we must install a separate type of statistical program accounting in terms of cost, as well as quantities of end-items, in order to produce these data.

This system may be described simply as the maintenance of individual end-item accounts (or classes of materiel for minor items) based upon the program itemization in the operating budget. The individual accounts would record the amounts programmed (separated between departmental and customers' requirements), the periodic amounts delivered, and the balance in process of procurement at the end of each period (without separation of customers' balances). Data on the amounts delivered would be obtained from the property accounting system. Cost would be in terms of the unit-prices used in the budget estimates; so far as feasible, these prices should be the same as the standard prices for the items used in the property-accounting system. Adjustments to up-date the estimated prices should be recorded from time to time. These accounts might also be used, if desired, to record on a continuing basis the schedules of deliveries by period for the total amounts programmed.

These accounts should be maintained in segments corresponding to the budget-account categories. For each such segment, it would be desirable to prove or reconcile periodically the status of the program in process by reference to the related fund and property accounts. This relation may be expressed in a dollar summary as follows:

From the property accounts:

Inventories of components for use in production -
In depot stocks (ear-marked)
In hands of contractors
Unliquidated progress payments
Total work in process

From the fund accounts:

Contracts and orders outstanding
Commitments outstanding
Reserve for completion of program:
Apportioned
Not apportioned
Total estimated cost to complete

Total balance of cost of program in process

The above statement should be informative to procurement management, as well as a mathematical device to assure accuracy of all related program and budget data, including the data in that part of annual cost-based budgets which covers completion of prior years' programs. In particular, it is the best possible proof of the availability of funds to complete the approved program, and it gives assurance that the unreserved balance of funds is fairly stated and available for new programs.

Training Executives in Financial Management

Fred W. Winkleman, Chief of the Statistical Analysis Division, Office of the Comptroller, Army Map Service

One of the largest and best-equipped map-making organizations in the world, the Army Map Service, operates under the direction of the Army's Chief of Engineers at a location in the Washington area as well as in four field offices located in other parts of the United States.

The ever present requirement for skilled technical help in the professional areas of map making has, for a number of years, presented a problem to the Army Map Service - a problem which has been overcome only by the development and operation of an aggressive training program. Under this program young people from the high school and college campuses of America are encouraged to enter training at the Army Map Service upon a "learn as you earn" basis which, after a suitable period, assures successful trainees of remunerative employment in the field of mapping.

Although the training requirements in the technical areas have been satisfied with this type of program for some time, it is only recently that the need for continued development in the administrative and executive areas has been recognized. With the recognition of this need came the appointment by the Commanding Officer, Army Map Service, of a committee which was charged with the responsibility of concerning itself with further training, orientation, and development of the various echelons of management. This committee, composed of some of the top executives in the organization, functions as a group under a Chairman who sees to it that the proposals and recommendations of the committee are properly presented to the Commanding Officer for approval.

Initially, the committee studied the requirements of the men who represent the existing top level of management, and also of those individuals who serve in junior executive capacities and on whom some day will fall the responsibility of becoming top managers. A number of training courses were especially developed and were successfully applied with beneficial results. Probably the most predominant among these programs was the course known as Personnel Management for Executives. Now, Personnel Management for Executives as a training program is certainly not new to Governmental circles; some of our executives had previously been exposed to courses of this type conducted in other Government agencies and this undoubtedly influenced the committee to sponsor such courses at the Army Map Service. The PME courses, as they are known, have been extremely well received and have been given to personnel down to the Branch Chief level; in some cases where the committee determined it appropriate the training was given even below the Branch Chief level.

In the eyes of the committee, however, training in Personnel Management provided only a part of the solution to the problems of the executive. The committee cast about for a means of broadening the knowledge of these technical people, and in this search it became evident that most of them knew little of the complexities of financial management.

This is understandable.

Our executives were chosen primarily for their technical abilities and proficiencies, with lesser regard for their administrative talents or backgrounds. Modern business systems require specialists for their accomplishment as much as do the changing technical procedures in the fast moving pace of the present day technology. If it is proper for us to select men for top management technical jobs on the basis of their technical experience and abilities, we should not also expect them to be versed in the fields of funding, budgeting, accounting, and the like. Still, there is no reason for technical executives to ignore these basic business devices which so drastically affect their technical operations.

It is important to note that the executives themselves recognized their lack of knowledge in these areas. This is evident in the fact that the Executive Development Committee was made up of such executives, and the committee felt strongly enough about this lack of knowledge that they proposed a plan to overcome the deficiency. Colonel F. O. Diercks, Commanding Officer of the Army Map Service, was quick to see the value of the committee recommendation and strongly supported it with his approval and with an unflagging interest in the progress of the committee toward its goal. This wholehearted enthusiasm provided an impetus to the efforts of the committee so that plans were immediately drawn for a conference to be known as "Financial Management for Executives." To the Comptroller, logically, fell the task of preparing for committee approval an outline of the subject matter for such a conference. After approval of this outline, the Comptroller was charged with arranging for the conference to be held in the Army Map Service Training Center. The personal endorsement of the Commanding Officer was further evident in the invitation,

signed by him, which each participant received. These invitations requested that the executive arrange to divorce himself completely from his regular duties for the entire period of the conference so that he might give his full time and attention to the subject matter being considered. Also, Colonel Diercks opened the conference with a message in which he indicated the importance he attached to this training, and he closed the conference with the distribution of the training certificates. He was able to attend several of the sessions, too, thus demonstrating his continued interest.

At the outset of the planning, the Comptroller insisted that our approach should be one of encouraging the technical executives in the use of the Comptroller services. This was an important point; as a staff function there was a tendency for the efforts of the Comptroller organization to be either criticized or ignored, and here was a beautiful opportunity for the Comptroller staff to do a public relations job for itself. A down-to-earth analysis of the Comptroller functions convinced the personnel within the organization that the approach from a servicing standpoint would probably be the best way to overcome the resistance which seemed to be felt from several areas. We decided that even though most of the functions of the Comptroller were directed by regulation which prescribed not only what was to be done but how it should be done, and even though it was often necessary for Comptroller personnel to invoke these regulations in their dealings with technical elements, nevertheless the Comptroller organization still had much to offer in the way of service and assistance to plant management. Perhaps this was a unique approach. It would have been easy for our speakers to stand before these people and shake a finger in their faces; but we felt that this was more likely to lose us friends than to gain them. Also, we invited free discussion and frank questions on any aspect of Comptroller operations. We felt this was necessary in order to establish confidence and a healthy atmosphere of understanding. We knew there were many questions in the minds of these men and we wanted to be sure that, if at all possible, all such questions should be satisfactorily answered. We came up with a firm belief that before the conference was over this type of approach would inspire a better understanding while, at the same time, it would provide the orientation and training that was desired. The Comptroller and his Division Chiefs recognized that their heads could be on the chopping block; that here was a splendid opportunity for opponents of the Comptroller concept, and more specifically of the AMS Comptroller organization, to lift their axes with unerring aim; but we were willing to take that chance because we were willing to believe that we would not be subjected to malicious censure. Our optimism paid off and the reactions from the group, both during the conference and in the months since its completion, have revealed not only a warmer attitude but also a broader use of Comptroller services.

One of the things which became evident early in the planning of the agenda was a need for guest speakers at certain points during the program. This did not result from a lack of ability on the part of Comptroller personnel (although it was frankly admitted that none of the Comptroller personnel might qualify as public speakers and therefore should not be judged as such) nor from a lack of material for discussion; rather it became apparent that outside speakers might present a refreshing change from the monotony of lengthy lectures by personnel with whom the group could be expected to have daily contact. The initial proposals of the Comptroller to the committee covered a conference of about three days, but at the suggestion of the Commanding Officer the committee directed the extension of this period to a full week, thus making time available for the incorporation of guest speakers. For the PME courses there seemed always to be an abundance of talent readily available for guest lectures, with the staffs of the local universities being a primary source. However, investigation of these same sources for speakers in the field of Comptrollership was much less productive. In fact, our discussion with one university which provides a course in Comptrollership resulted in some raised eyebrows and querulous replies; it seems that this university, as well as some others, tends to rely on the government (particularly the military) as a source for lectures in its own courses. Why, then, were we coming to the universities to ask them for help? (It is only fair to state here that some of the university talent which should have been available for duty in the planned conference had already been utilized in the PME courses on unrelated subjects; therefore there was a fear on the part of the lecturers that their effectiveness would be lost since many of the conferees had already attended PME.) Undaunted, we continued our search until we compiled a rather impressive group of speakers, not large in number but able in their particular fields to command attention.

Simultaneously with our search for talent it was also necessary to conduct a search for reading and reference material. As may be expected, the Army Map Service receives many periodicals and publications and all of these, covering a period of several years, were reviewed for

articles which contributed something to the various sections of training proposed. Also, lesson material from several service schools, notably the Finance School at Fort Benjamin Harrison, Indiana, and the Command Management School at Fort Belvoir, Virginia, was investigated and much material was obtained from these sources. The purpose of this was to produce a manual of reading material which could be put into the hands of each participant and from which homework assignments could be made. A rather healthy-sized manual was compiled and included, in addition to all of the reading material, pages of daily agenda on which the reading assignments for the next day were given. This proved to be helpful to the participants because it enabled them to study in advance of the sessions. Some conferees were even known to have studied the assignments for several nights during one evening, although to others the study of one night's material seems to have been a monumental task.

Meanwhile, the Executive Development Committee had prepared a roster of all those people who should attend the conference. It was their intent that this training be given to Division (now Department) Chiefs, their assistants and the Chiefs of their control branches. Also included were the Chiefs of the four AMS Field Offices. With this impressive list it became obvious that the conference would need to be given more than once, and for continuity of daily operations it was decided that the Chiefs and Assistant Chiefs should not attend at the same time. Therefore, a plan emerged to conduct the conference twice with two months intervening. This provided a group of about 30 conferees for each conference - still a sizeable group for purposes of free discussion. A further division was then made creating two discussion groups within each conference, and a sincere effort was devoted to eliminating supervisor - subordinate influence within these groups.

One of the most important pieces of reading material in the manual was a glossary of terms in common use under the Army Command Management System. Many of these terms were completely foreign to the conferees, and having their explanations available in the manual was expected to contribute to an ease of understanding. As a matter of fact, on the first day the Comptroller kicked off the academic phase of the conference with a paper in which he outlined what we hoped to accomplish and how we planned to conduct the sessions on succeeding days, and during this presentation he called attention to the glossary of terms and went through a number of them, specifically discussing their meanings and answering questions from the group. At this point it began to be evident that certainly some of the difficulties between the Comptroller organization and the technical elements could be traced, as usual, to the old problem of communication. It was a good thing, therefore, to dig into this area at an early stage in the conference.

Another important tool that was used at the outset was the conduct of a "problem census." Time was allowed for each participant to provide (in writing) information of three types:

(1) "The benefits you expect to obtain from this conference."

(2) "Any questions you may have for which you would like answers during this conference."

(3) "Any problem areas in connection with Comptrollership and financial management on which you desire discussion or clarification during this conference."

On the basis of this problem census we planned to alter the presentations of our own Comptroller personnel to whatever extent might be necessary to satisfy the requirements of the group, while at the same time preserving the outline of the original presentation. Immediately after the completion of these problem census papers on the first day they were delivered by messenger to the Statistical Analysis Division where they were compiled, tabulated, and typed in sufficient copies for the use of the Comptroller personnel during the rest of the week. It was possible then for our speakers to work in the answers to many of the questions which were initially asked by the group, and at the end of the week some time was devoted to a rehash of these questions in the hope that any problems not touched on during the week could, even at this late date, be discussed. We felt that this device was helpful both to the lecturers and to the participants. Some of the questions which were received from the problem census are shown in Exhibit A.

The development of the presentations by Comptroller personnel required considerable effort. Each Division Chief initially submitted an outline of his subject area, and these were reviewed and revised to provide a good over-all integration of the individual components into a general pattern. Each Division Chief then developed his own presentation, with whatever graphics he felt were needed. The Vu-Graph was generously used throughout to good advantage, thus providing the opportunity to exploit some of the wealth of visual material available. The amount of time allotted to each presentation varied depending upon the complexity of the subject and the interest and need of the conferees. The subject areas of budgeting and cost accounting were assigned the largest amounts of time. Dry runs were conducted to develop a well

rounded presentation and were used to improve the platform manner of the speakers.

At the end of the first conference an evaluation was made by the conferees. This was accomplished in unsigned writing, monitored by the Chairman of the Executive Development Committee, with none of the Comptroller personnel present. Once again, our desire was for frankness, uninhibited by fear of recrimination. The papers were turned in to the monitor, who advised the Comptroller of the results. The second conference was then altered on the basis of the evaluations of the first. (Oddly enough some of the evaluations at the end of the second conference controverted the earlier ones!) Generally, the evaluations commended the efforts of the Comptroller staff, the material presented, and the idea behind the training.

A device used successfully toward the end of the week was the case study. Several were found which covered various phases of the training, and the technique was considered worthy of exploitation; in fact, for the second conference we wrote our own case study, geared to AMS operations, and this evoked some rather illuminating discussion. As a training device the case study method seems to be well worthwhile; sometimes we learn more by discussing our ideas with others than we do by actually trying to implement them or by listening to interminable lectures.

During the five days of the conference we tried to cover all of the various activities and services found in a military Comptroller organization (or more specifically, in our own Comptroller organization). We devoted five hours to a briefing on the complexities of budgeting within the Army, and there was considerable discussion concerning the part which the executive should play in preparing the budget for his own activity. At AMS, operating personnel are given such details as personnel strengths and anticipated work assignment and on the basis of this information, they prepare estimates of the number of man-hours required to accomplish each type of work, plus a forecast of how much will be accomplished each quarter. This information is then converted into dollars by the Budget Division, assembled and integrated into a single document, known as the Operating Program Schedule and Operating Budget. Obviously, this procedure requires forecasting of workloads considerably in advance of the year of accomplishment, and this fact provided a basis for rather lively discussion during the budget portion of the conference.

The accounting for the funds used in the accomplishment of the AMS mission, and the procedures used for computing the cost of such accomplishment, also was given a sizeable portion of the lecture and discussion time. Various methods of costing were explained and discussed, and the executives were told that the Office of the Comptroller was prepared to work with them in providing any type of cost accounting system the individual Departments might require or desire. (Since the conference, efforts have been made to convert some technical production from job cost to process cost. This procedure is still being tested.) An explanation of cost control also evoked lively debate.

Less time was devoted to other phases of the Comptroller's activities, but all were adequately covered. Internal Review, Property Accounting, Performance Analysis, and Review and Analysis, all functions which are integral parts of the Army Command Management System, found their place in the lecture and discussion periods. The guest speakers provided additional insight into these facets of financial management with illuminating presentation which showed how financial management is used in private business. Our plan of approach was to discuss the subject first in general; second, as applied in business; third, from the government-at-large standpoint; fourth, from the military standpoint; fifth, as applied under the Army Command Management System; and finally, how the Army Map Service implements the system.

It has been more than a year since Financial Management for Executives was given at AMS. During this period there have been opportunities to observe some of the benefits gained from the conference. We feel that at least some of the executives who participated are using the knowledge they gained; we feel that there is a noticeable improvement in the approach of some to financial administration, and a more intelligent usage of the services provided by the Office of the Comptroller. Financial terms have ceased to be a foreign language, and financial procedures no longer have an aura of mystery. We hope that there has been born an appreciation for the Comptroller organization - one which recognizes the existence of skilled and capable personnel, competent in a specialized field, who rightfully occupy an important position in a highly technical environment; who, by virtue of this position, are a vital part of the management team.

One of the most frequent comments found in the evaluations of the conferences was the one which expressed a feeling of need to be kept current in the area of financial management. As a result the Comptroller, in conjunction with the Executive Development Committee, is beginning to plan a new series of conferences. These will be designed to orient new executives and to provide refresher training for those previously

reached. At this writing it is planned to conduct conferences for smaller groups, and to attempt to localize the training within specific Departments. In this way it is possible that the peculiar needs of the various work areas will be satisfied. This, however, is a new approach; it will present new problems which must be worked out in order to successfully accomplish the goal of keeping all of our executives trained in the fundamentals of Financial Management.

EXHIBIT A

PROBLEM CENSUS SUMMARY
(numbers indicate the frequency of reference)

Benefits Expected

Better understanding of the budget - 10

Fuller understanding of Comptroller functions and relationship with the rest of AMS - 10

Better understanding of expenditure of funds, disposition of cost and effective financial management - 13

Questions

On funding - 11

On how to improve relationship between technical and financial fields and aids to production available from Comptroller - 7

On Army Command Management System; its purpose, operation, application at AMS, and its benefits - 7

On how U.S. and AMS budget - 22

On varied subjects such as expenditures, statistics, contracts, reports, line of fiscal control - 11

Problem Areas

Management - 5

Budgeting - 5

Reporting - 3

Planning - 3

Finance - 3

Contracting - 2

Some Questions Asked in Problem Census

1. Why does the Comptroller so frequently seem to have his hands tied when it comes to money matters?
2. How can the relationship between the technical and financial fields be improved?
3. What aids and services are available to production elements from the Comptroller?
4. What is the relationship of fiscal management to production?
5. What type of information can the Comptroller furnish on a periodic basis to assist line or staff?
6. What benefit has AMS gained from the Army Command Management System?
7. What is the Comptroller doing to eliminate the "red tape" connected with management controls?
8. Where do the responsibilities of the Comptroller and the operator meet, and is there an overlap?
9. How can the financial program of AMS assist in estimating cost, preparing budgets, and making forecasts; and how can internal control be improved?
10. What can the Comptroller contribute in developing an effective logistics system?

EDP FOR MISSILE MANAGEMENT

Colonel Alan G. Haemer, Director of Comptroller, 1st Missile Division, Vandenberg AFB, California

The subject "The EDP Role in the Missile Program", includes the computers busily burning microseconds with the various prime and sub-contractors, at the Space Technology Laboratories at the Ballistic Missile Division, the computers involved in ground and flight guidance and those used for instrumentation and a whole bevy of electronic mental giants at Cape Canaveral, White Sands, etc.

It might be a little more reasonable to limit this to the "parameters" of "EDP For Missile Management", subtitle, "Into the Wild Black Yonder".

Let's take a look at the SAC Ballistic Missile Program. Sites will be scattered throughout the country. Many of these sites have been announced while others are still under a classified label. Our missile units will come under our SAC Numbered Air Forces, the same as our manned bomber units. These missile units will experience many of the same problems that we are now encountering at Vandenberg. It is important that, through our experience, we may save these other units many headaches.

Here at Vandenberg we have our soon-to-be-operational missile base. Some of these are operational pads and others are used for training and space flight. What Vandenberg will look like tomorrow is classified and in some cases "undecided".

Considerable attention has been given to our missile program. Production schedules for missiles and support equipment, training of personnel, and construction of launch facilities have all been directed toward one magic operational date. Insufficient and tardy thought had been given to any method for properly managing, and thus controlling these weapon systems.

The complexity of the weapons and the short reaction time necessitate a "Weapon Centered" and "Decision Oriented" management system; one that was directed toward maintaining our missile force in a maximum state of readiness. A system that related locally generated data for the strategic missile system to the individual weapon and its support equipment. The answer lay in a coordinated data processing system which can serve management with both the data needed to maintain readiness and the data needed for operating activities.

Some of the features of a missile force that require a very comprehensive management system which is weapons oriented are:

1. A reaction time that makes it important to keep the force readiness at a high level.

2. A difficulty of measuring readiness. Since missiles do not fly regular training missions, data on their operation are relatively scarce, and therefore valuable. Malfunctions may be difficult to detect and performance hard to evaluate. In general, the amount of uncertainty in the system is large.

3. A demand for increased reliability. The whole system is highly automated. Present designs do not have any agent comparable to a human to compensate for minor malfunctions.

This "Weapons Oriented" system would be in contrast to "activity oriented", where we keep records within each separate activity. For example, Maintenance keeps records on repairs accomplished, etc.; Supply keeps records of issues, etc. However, under this system integrating the many scattered records into usable data for weapons management would be an almost impossible task.

To provide you with a better appreciation of what is needed to manage our missile force, let's look at an integrated maintenance management system. For instance, we need to know what has to be accomplished, the time required to make the repair, what personnel are available, what tools are needed, what parts, and are they available. All these are required for optimum scheduling.

Under this system there will be two main files in computer storage. The first of these—the job file—will be organized by missile. It will contain all jobs that will be performed on a particular missile including:

1. Components that must be replaced at given times, i.e., calendar or operating times.
2. Periodic Inspections.
3. Preventive Maintenance.
4. Technical Order Compliance (TOC) and Engineering Change Proposals (ECP).
5. Delayed Maintenance.

Associated with each job will be other data (i.e., number of failures of each component and time accrued on time change items), and the resources that it takes to perform each of these jobs (i.e., skills, time and tools).

The other file will contain the resources that we have available to perform these jobs, i.e., number of men by skill, reference to appropriate tech manuals, special tools and test equipment, and parts. These stored data must be kept current if they are to be of value to the people who can use them.

The action agencies, such as SBAMA and the squadron maintenance organizations will feed

action data into storage thru the processor. Examples of this will be: A new TOC or ECP, an operation of a system, or a component failure. The processor then will search storage for all unaccomplished jobs, allocate the resources to these jobs in an optimum fashion, and print out the work order. Complete information is included: job to be performed, parts and tools required, personnel allocated, priority, and estimated time for completion. After the work has been accomplished, data from the completed work order will be fed back to the processor which then will update the files in storage, and perform various required analyses.

A good example of the type of feedback would be "manhours required to accomplish a given job". From this, more accurate job standards could be developed. Another example would be notification of the installation of a new component on which records of operating time must be kept. All these tasks would be accomplished with a minimum of human interference, resulting in more accurate data being presented as soon as it is needed.

At Vandenberg, we are dealing with extremely complex weapon systems. The ATLAS missile itself contains about 400,000 parts. It has 500 time significant components on which operational time data must be kept. The Automatic Programmed Checkout Equipment contains over 1800 relays and 6,000 terminal connections. The Launch Control Equipment contains 8,000 relays and there is enough wiring among the three pads, the blockhouse and the guidance building to extend around the world 10 times. In addition to the complexity, we are faced with many factors on which we have no experience data.

In the THOR training squadron there are about 857 different jobs to be learned by the trainees. In the course of this training during the past four months we have submitted 356 materiel failure reports, each containing some 35 items of data. A great deal of this can be attributed to the fact that we are still in the research and development phase, and with such complex equipment, there are many different things that can go wrong all at one time. During the course of a countdown, over 8,000 different relays are activated. If the control panel light which indicates propellant transfer complete fails to light and a red light shows it is due to internal system malfunction, 46 of these relays must be checked.

I give you these statistics to show the volume of data with which we are dealing and the need for keeping information data on every phase of the operation in a system where it can be readily made available. All of this requires data that are immediate and responsive to the demands of management and the operating activity. These will supplement the AMC weapon system management. It is emphasized that these data will supplement and not duplicate the AMC system. We have established a close working relationship with Colonel Kirby and his staff at SBAMA. Here at Vandenberg we are concentrating on meeting the requirements at organizational level in order to maintain an effective missile operational and training capability.

Obviously, EDP is required to handle the large volume of actions input/output for this system to meet the close reaction time with which we are faced, to handle the many interactions and inter-relationships of data, and to provide the fast immediate access storage required.

The installation, programming, and operation of this system at Vandenberg has been accomplished by contract with the Telecomputing Services, Inc. Since SAC had insufficient skilled personnel available that could be assigned to this project we could meet the close time compression only by this method. By contracting, we were also able to avoid some of the red tape involved in procurement of communication equipment, supplies, and forms. We also found that we obtained some fresh ideas, new approaches, and new methods.

Five closely integrated initial applications are planned:

1. Missile maintenance
2. Integrated Weapon System Training
3. Supply
4. Personnel, and
5. Financial Services

Each of the applications is divided into four phases. Systems Development, Programming, Test, and Operational. The Systems Development is basically an Air Force function. The Programming, Testing and Operating phases are contractor functions. There is the normal overlap in the Systems Development and Programming functions. The scheduling, as indicated, pertains only to the initial efforts in each application. Further refinement, optimizing and integration will be made after the system is operational.

To date, the Systems Development has been completed in Supply and IWST. Maintenance and Personnel are approximately 70% completed and Financial Services 50% completed. The program effort in Supply is almost 100% done. Programming for IWST, Maintenance and Personnel is in the initial stage.

The Electronic Missile Management System consists of a central computer located in a Data Processing Center. This Center is designed and operated to provide data processing service to all major functional areas that have a need for this type service. Remote input and output devices will be located within the operating sections and

will be tied directly to the computer center. Data will be recorded in the operating sections as a part of their normal operation and entered directly into the computer center via input devices. Those reports and operating documents that are a result of data processing will be returned to the operating agencies thru the means of the output devices.

The operating sections will have the ability to make direct inquiry of the computer center for data needed in their operation. For example, if Supply needs to know the quantity of a particular item in inventory or on back order, it can make inquiry of the computer center and receive an almost immediate reply.

Under the Electronic Missile Management System the operating agencies have the complete capabilities of a computer available for their use as though it were located in their own operating sections. Although the central computer is shared by several operating agencies, the speed and capacity of the data processing equipment will be such that little, if any, delay will be encountered in meeting all known requirements.

The consolidation of the data processing functions in one computer center will permit the integration of data in all of the above functions to a degree never before possible. Duplication in the handling of transactions will be almost entirely eliminated as one transaction will be used to update a variety of records maintained in memory within the computer.

Although we are only in the initial stages, we have already identified many of the areas of integration of data. We find that many of the transactions encountered in the daily operation of a missile base affect most of our operating functions. Under our centralized system, one transaction can be used to update the files for many functional areas. For example, a purchase order will affect records of Supply, Finance, and possibly Maintenance and/or Engineering. A material failure will affect Supply, Maintenance, Operations and the using organization.

Getting such an EDP system started has not been an easy task. We were first faced with the requirement for a suitable building. The best we could do was to re-hab an old weather-beaten QM warehouse. This project was prepared and sent to Washington for essentiality approval. Months passed without concurrence. After several inquiries and trips we discovered that USAF had no record of this building. After considerable effort, notice to proceed was finally obtained. An excellent job of rehabilitation in the time period of 3 months has made it into one of the best buildings on the base.

This project has always had complete command and staff backing. It represents a coordinated effort on the part of many organizations and activities including the missile squadrons themselves, the Combat Support Group staff, Headquarters, 1st Missile Division, SAC, BMD, Rand Corporation, SBAMA, weapons contractors and the EDP contractors. In addition, we have had a full complement of Air Force project officers within the 1st Missile Division headquarters. An officer has been allocated to each application and he has devoted full time to his area. We also have a representative from Rand Corporation who devotes almost all his time to this project. SBAMA has appointed a project officer who coordinates the efforts between our two organizations. Weapons contractors have contributed extensively to the data needed in our maintenance and IWST application. A close and effective working relationship exists between the EDP contractors and the military personnel working on this project.

In conclusion, we are pioneering a system which presents extremely interesting and vital problems. Although these are our problems today, they will be yours tomorrow. And believe me, we stand ready to receive all the help we can get.

EDITORS MEMO

Your National Editor, representing "The Armed Forces Comptroller" was in attendance at (1) President Eisenhower's news conference on 7 September 1960 in Washington, D. C. and at (2) the 15th Session of the United Nations General Assembly on 22 and 23 September 1960 in New York City, the principal speakers being President Eisenhower on 22 September and N. S. Khruschev, Head of the USSR Delegation, Chairman of the Council of Ministers of the USSR on 23 September.

THE TRANSACTER – A NEW DEVICE FOR SOURCE DATA AUTOMATION

Claude T. Gurley, Head, Data Processing Division
U. S. Naval Weapons Plant, Washington, D. C.

Editor's Comment

The Naval Weapons Plant is the oldest shore establishment of the United States Navy. It was founded by President Adams in 1799 as the Washington Navy Yard. Since 1847 when shipbuilding was abandoned at the Yard, it has been the principal plant for the production of naval ordnance. This "oldster" has now come up with the TRANSACTER, a new development in integrated data processing. This article describes the concepts and developmental work underlying the achievement.

Discussion

The input components which form the basis of the transacter's operation follow the coding of documentation. The document coding at NWP is split into three parts as follows:

1. The Permanent Data. The pre-set portion of the coding, such as the Cost Center number, the Work Area number, the day and time of the transaction. These data are put into the data processing system automatically.
2. The Static Data. Information which can be determined before the start of the data processing operations. This includes employee number, job order number, fund identification, expense account, budget account, and the machine assigned by the Planner to do the work.
3. The Variable Data. Information which cannot be predetermined, including time on the job; cost of the work done; identification of the materials used; and the count of pieces completed. This information is inserted at each transactor station by the Dispatcher upon the completion of each work stage.

The Input System

The layout of the Transacter System for shop data input at the Naval Weapons Plant is shown by the appended schematic. One transacter (number 4 on the schematic) is located at each Shop Dispatcher's station. One compiler, shown as number 5, can service up to 36 transacters.

The compiler itself is a tape-punching piece of equipment with a selecting device to pick up automatically the inputs of any transactor as these are made ready by the Dispatcher for transmission. The other elements of the input system are explained on the schematic. Component number 1 is merely a programmed electric typewriter equipped with a paper tape punching device. Element number 6 is a paper-tape to card converter of standard design.

The input system centers on the transacter. This is a new piece of equipment developed jointly by the Naval Weapons Plant and the Stromberg Time Corporation, Thomaston, Conn.

The primary concepts were developed in 1956 when the problem was recognized as the timely collection of accurate labor charge data in a machine-readable form to follow the money identification of the transaction.

The Transaction Recording System

Starting with this transaction concept and with the definition of our needs, specifications were drawn up for a transacter as a piece of equipment. These specifications were necessarily founded upon the configuration of our paperwork. For example, process data from our shops comprise Labor charges collected on time cards; Material charges collected on stub requisitions against Supply Department stocks, and on invoices covering direct purchases. Also, Master records collected from the Planners' Work Sheets and from the Work Order and Scheduling Instructions.

The problem was complicated by the fact that NWP is a job shop which manufactures an order prototype ordnance hardware and ordnance systems. There is relatively little in the way of volume or repeat production. Controls, therefore, had to be built around the Static Data.

The arrangement of the NWP Shop Recorder System is given on the schematic. One transacter is located at each shop reporting point, that is at each Dispatcher's Station. The schmatic shows (numbers 4 and 5) the transacter and the compiler which receives data from the transacter, tests and verifies it and then automatically punches the information into a 7-channel paper tape. This paper tape is converted into standard EAM punch cards for entry into the EAM data processing system. It could as easily be entered directly into an electronic data processing system.

NWP has thus added a new means of automatically recording data at the source. No hand manipulation of input data is required anywhere beyond the few simple motions of the Shop Dispatcher which are made at the precise time a particular shop or cost center has finished

with its part in the sequence of production operations or at the end of each shift. At this time the variable information is dialed into the transacter box and the elapsed time is thereafter automatically computed.

The Input Data

It was recognized at the outset that much of the data reported for each labor charge was of a static or predetermined nature. For example, it was known that a man would work on a job on a machine. But which man would work on which job on which machine was not known. Previously to record labor charges manually on the time card required the longhand entry of approximately 20 digits for each labor charge and an estimate of employee time expended. The error rate was high. During the Fall and Winter of 1956 inquiries were addressed to many companies for the production of equipment which would permit a rapid and accurate combination of static and variable items of information and which would be recorded in a machine-readable document for use with punched card equipment or with digital computers.

In January 1957 negotiations were initiated with a contractor. These were consummated in June of that year by the signing of a contract for the development and production of 10 recording instruments and 2 central compilers which would perform to the specifications previously established by NWP. In general, these specifications called for a machine which would simultaneously read a maximum of 3 punched cards. In addition, it was specified that the machine should accept 8 digits of variable information, 7 of which were to be injected by the use of dials and one by the use of a yes or no switch. It was further to read this information at the rate of 60 digits per second and transmit it to a compiler which was to make several accuracy checks, and then to insert the time of recording and punch the information into a paper tape automatically, and at the rate of 60 digits per second.

Through close cooperation between NWP who furnished the systems guidance and the contractor who furnished the technical engineering capability, such equipment was developed, produced and delivered in 1959. It has since been tested, debugged, and has been operating successfully on line since May 1959. A description of the equipment is outlined in the following paragraphs.

The Dispatcher

A Dispatcher's post consists of a desk or table, two metal tub files on casters, 6 or 8 card racks and the transacter. The Dispatcher maintains a 15-column punched plastic card file with a tag for each man in his work area. The worker's name and number are printed on each tag. A second plastic tag is held by the Dispatcher to identify each machine by its 3-digit machine group and its 6-digit ordnance serial number. Each card remains racked at all times at the Dispatcher's station, ready for immediate use.

As each instruction sheet is typed (in the production planning and control office) the definitive and quantitative data are accumulated on a paper tape. As shown on the schematic, each tape is converted on the tape-to-card converter into punched cards (see system step 6) which constitute the production control Master File. The Job Order and Operation Number (12 digits) is then reproduced from these cards into the stub portion of a serrated punched card and interpreted. These cards are stapled to the appropriate process sheets in the shop office. They are then placed in a packet with the drawings for the use of the Dispatcher.

Each dispatch station is also supplied with a complete set of plastic tags for overhead accounts, one for each account to which labor may be charged. During his regular hours of duty and while working on authorized overtime, each employee's tag is filed with either a Job Order and Operation tag or an Overhead tab. Each time his work status changes from one production job to another, from production to overhead, or from overhead to production, the shop mechanic is clocked out by the Dispatcher. Employees are clocked out, never clocked in. For example, when a man's regular duty hours begin, his tab is racked by the Dispatcher with the appropriate Job Order or Overhead tag. Assuming he is working on a productive job at the beginning of his shift (8:00 AM) and he finished that job at 10:30 AM, he is clocked out and assigned to another job, perhaps on another machine. He finishes the second job at 1:30 and is clocked out. Next he gets permission to go to the Dispensary. He gets back at 2:30 and is clocked out on time allowed. If he goes on sick leave he is clocked out as on sick leave at 4:00 PM, the end of the shift. The elapsed time for each clocking is automatically computed on the calculator each night and punched into an appropriate card.

The dispatcher and leadingman are furnished with two reports at the beginning of the shift. These are a listing of yesterday's labor and overhead charges by employee tag number and a cumulative status report on each job worked yesterday. At the beginning of each week, shop supervisors are furnished with a cumulative

status report on every job assigned to each work station.

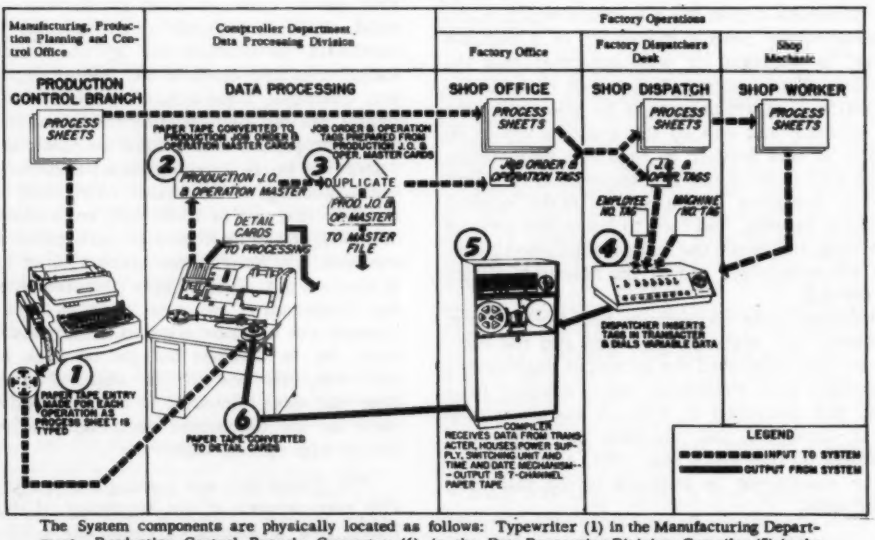
Transmission of Data

Clocking is accomplished by inserting in the card slot the employee's tag, the job order or overhead tag, and the machine tag; then the setting of the appropriate dials and pressing the "plus" button if set-up time was used and by pressing the transmit bar. Thereupon the message is ready for transmittal. If the compiler is busy with another Dispatcher's data the information is held and the Ready-to-Transmit Light is on. When ready the compiler edits for parity, length of message and strength of signal. This is done and the data are taped in one second. A Dispatcher can perform the clock-out, from start to finish, in an average of five seconds. The dial settings are indicated in large numerals in visible windows above each dial. These remain visible until the tags are removed, at which time all dials, except the transaction dial, revert automatically to zero. In the event the compiler detects an error, an error code is punched into the paper tape and the error light on the transacter lights up. The Dispatcher then verifies his tags, dial settings, etc., and retransmits. If he fails to transmit successfully after a couple of tries, he calls the maintenance man. First echelon maintenance is normally performed by the Dispatcher.

The need for unofficial record keeping has been completely eliminated. At approximately 9:00 AM each day each shop is furnished with a listing of the cumulative status of all jobs worked the preceding day, showing the status of each job in detail. Once each week a complete listing of the production control master file by shop, job, and operation is provided each shop center. The entire file is also run by job and operation for the Production Control Office. Periodically, the master file is run through a computer to segregate those operations which are off schedule. This Exception Report is used to bring operations back in line with controls. A computer is also used to process the file for workload data.

In summary, the transacter system has proved effective in providing accurate labor charge data, reducing shop records, and in paving the way for more effective use of a data processing system. Additional potential applications are for shop stores; for material issues and receipts; for tool issues and control; and for plant maintenance.

A Schematic of the Transactor System
Naval Weapons Plant
Washington, D. C.


Manufacturing, Production Planning and Control Office
Comptroller Department Data Processing Division
Factory Operations
Factory Office
Factory Dispatchers Desk
Shop Mechanic
PRODUCTION CONTROL BRANCH
DATA PROCESSING
SHOP OFFICE
SHOP DISPATCH
SHOP WORKER
PROCESS SHEETS
PAPER TAPE CONVERTED TO PRODUCTION JOB ORDER & OPERATION MASTER CARDS
JOB ORDER & OPERATION TAGS PREPARED FROM PRODUCTION J.O. & OPER. MASTER CARDS
PRODUCTION J.O. & OPERATION MASTER
DUPLICATE
PROD J.O. & OP MASTER TO MASTER FILE
DETAIL CARDS TO PROCESSING
JOB ORDER & OPERATION TAGS
J.O. & OPER. TAGS
EMPLOYEE NO. TAG
MACHINE NO. TAG
DISPATCHER INSERTS TAGS IN TRANSACTER & DIALS WORKABLE DATA
PAPER TAPE ENTRY MADE FOR EACH OPERATION AS PROCESS SHEET IS TYPED
PAPER TAPE CONVERTED TO DETAIL CARDS
COMPILER RECEIVES DATA FROM TRANSACTER, HOUSES POWER SUPPLY, SWITCHING UNIT AND TIME AND DATE MECHANISM -- OUTPUT IS 7-CHANNEL PAPER TAPE
LEGEND
INPUT TO SYSTEM
OUTPUT FROM SYSTEM

The System components are physically located as follows: Typewriter (1) in the Manufacturing Department, Production Control Branch; Converter (6) in the Data Processing Division; Compiler (5) in the Factory Office; and the Transactor (4) on the Desk of the Shop Dispatcher. The Process Sheets (7) comprise the technical directions from the Planners of the Production Control Branch for use by the Shop Mechanics. As work is accomplished time cards are inserted in the Transactor (4) which sets the system in motion for cost and control purposes. Control is effected on a Labor Hour basis.

AUDIT SERVICE IN AND FOR THE ARMY
(THE U. S. ARMY AUDIT AGENCY)

Bernard B. Lynn, Assistant Chief, USAAA For Policies And Plans
Headquarters, United States Army Audit Agency

AUTHORITY AND RESPONSIBILITY FOR AUDIT

Title IV of the National Security Act Amendment of 1949 established a Comptroller of the Department of Defense, and a Comptroller in each of the three Military Departments. The Comptrollers of the Military Departments were given the responsibility for all budgeting, accounting, progress and statistical reporting, and internal audit in their respective departments. In the Army, the Chief, U. S. Army Audit Agency is charged with the performance of the audit responsibilities of the Comptroller of the Army; represents the Comptroller of the Army in matters pertaining to audit; and develops and executes applicable plans, programs and policies. (Army Regulations 36-5)

U. S. ARMY AUDIT AGENCY (USAAA)

ORGANIZATION

The U. S. Army Audit Agency is a Class II activity of the Comptroller of the Army. It is comprised of a Headquarters in Washington, D. C. and various field offices throughout the Continental United States, and in all parts of the world where the Army performs its mission. The field offices fall into two categories: supervisory and operating offices with staffs performing audits of Army installations and contractors on a mobile basis; and residencies - USAAA offices at Army installations and contractor plants with permanently stationed staffs devoted to continuous audit service at the respective locations.

The Chief, U. S. Army Audit Agency serves as a member on the staff of the Comptroller of the Army. Direct channels of communication between the Chief, USAAA and the Assistant Secretary of the Army for Financial Management are authorized.

HISTORY

As a result of Congressional and other external criticisms, a study of the War Department Audit Program was made under the direction of the Director of Service, Supply and Procurement. In a memorandum for the Under Secretary of War in August 1946, the Director of Service, Supply and Procurement reported that the War Department lacked an integrated unified auditing program or auditing agency; that audits of contractors performing under War Department contracts were made by the technical services who were interested agencies; that industrial property accounts, although certainly related to the financial aspects of contracts, were audited by Army commander, who were disinterested agencies; that military property accounts were also audited by Army commanders who, in this instance, were interested agencies.

As a result of this and other studies, and related recommendations for a single organization to be responsible for all auditing, the Army Audit Agency was established on 12 November 1946, under General Order No. 135. The Agency was placed under the jurisdiction of the Chief of Finance and was responsible to the Under Secretary of War to perform auditing service on an Army-wide basis within the Zone of Interior for the Military Establishment. Army commanders and Chiefs of Technical and Administrative Services then performing audits in these areas were relieved of this responsibility, and the personnel and related funds involved were transferred to the Chief of Finance.

In the some 13 years that have passed since its establishment, the U. S. Army Audit Agency has undergone a number of changes in organization, mission and scope of its audit services. When the Comptroller of the Army was established pursuant to statutory provisions, the Agency's reporting line shifted from the Chief of Finance to the Comptroller. Initially, the Agency was a division of the Office of the Comptroller of the Army, and ultimately it became a Class II activity. In the summer of 1952, the Agency underwent a reorganization designed to strengthen its operations and to place it in a position to perform comprehensive audits of Army activities in accordance with the Budget and Accounting Procedures Act of 1950 and the implementing directive of the Secretary of Defense. The reorganization included the precedent establishing action of providing a general officer as Chief of the Agency. This comprehensive audit program, explained more fully below, was launched in the spring of 1953. Another very significant event in the life of the Agency was the delegation of authority to extend its audit responsibility to oversea commands in 1955.

OPERATIONS AND PERSONNAL

In 1950, the USAAA strength aggregated 800. The Korean War generated a sharp increase in Army activities and expenditure, and a corresponding rise in demand for audits of contracts. Shortly after that, the comprehensive audit program at Army installations resulted in additional requirements for audit. These were the primary factors in the expansion of the Agency to its peak strength of 2844 on 30 June 1956. In the area of internal audit the time required for a comprehensive installation audit has been reduced by 40%. As its proficiency increased, the USAAA management achieved consonant reductions in personnel strength, and effected a gradual and logical reduction from the peak of 2900 to approximately 1700 in January of this year. In Fiscal Year 1959, the USAAA audited $4,500,000,000 of cost claims and representations submitted by firms holding Defense contracts. Of this amount, potential savings to the Government in terms of cost questioned aggregated $181,000,000. Expressed in terms of personnel engaged in this area, each auditor on an average, examined $6,500,000 of contractors' claims and submissions and was responsible for potential savings of $260,000.

There are over 500 Army installations and activities in CONUS and overseas. During Fiscal Year 1959, we issued 250 installation audit reports in addition to various special reports described in other sections of this paper. Although the benefits which the Army obtains from these audits are not susceptible to the precise mathematical calculations which are obtainable in the case of audits of contractors, our audit function in this area has become accepted as one playing an important role in improving the efficiency and economy of the Army's operations as an integral part of the total Army Financial plan.

USAAA CIVILIAN CAREER MANAGEMENT PLAN

In order to meet its staffing needs on a world-wide basis, the USAAA established a civilian career management plan for its auditor personnel. The objectives of the plan are:

To fill positions as vacancies occur at all levels and in all locations of the organization with competent, experienced staff members.

To provide through positive career planning for the advancement of staff members to positions of increasing responsibility, prestige and pay, commensurate with their breadth of experience, demonstrated ability and potential.

To maintain an audit staff capable of the maximum productivity in accordance with the highest professional standards of performance, through systematic training and development.

Particular stress is placed on a continuous training program for all USAAA personnel designed to assure the effective accomplishment of the Agency's complex audit service mission. As an illustration, the USAAA hires a number of college graduates each year under an approved intern program. These recruits are given a three-week intensive training course which covers Army organization, military courtesy, appropriation and fund accounting, financial aspects of procurement, supply and stock control, ACMS, Government-furnished property in the hands of contractors, pertinent ASPR and APP provisions, industrial cost and financing operations, etc. This course is followed by extensive on-the-job training, closely supervised by experienced USAAA personnel.

Throughout his career in the Agency, the auditor receives training from time to time, consistent with the level he has attained. For example, we have recently completed management training courses for our Auditors-In-Charge and for our Supervisory Auditors. As one further example, 80 of the key Agency executives, including the Chief, USAAA, attended a course on Data Processing for Military Executives.

STATISTICAL SAMPLING

The USAAA has endeavored at all times to keep abreast of the latest professional and technical developments in its continuous effort to improve its audit service in and for the Army. As an illustration, we have been engaged in a study to explore the use of statistical sampling techniques for audit purposes. We have conducted several pilot audits and have explored the subject thoroughly within the Agency and with leading outside experts. We have concluded that statistical sampling methods promise a number of advantages in terms of reducing audit time and achieving more scientific and tenable audit conclusions where the volume of transactions require extensive tests. Currently, we are phasing in the use of statistical sampling methods throughout the Agency with concurrent training of our auditor personnel.

AUTOMATIC DATA PROCESSING SYSTEM

The ADPS area furnishes another example of a significant current development which has engaged the active interest of our Agency. Several years ago, we recognized the inevitable growth in the use of electronic computers for business

purposes by both industry and the Army. Through extensive training at Army and commercial courses, many of our auditors are being prepared to render audit service where ADPS has been installed, to assist, upon request, in the planning for these systems, and to use the computers as audit tools. We are currently engaged in formalizing our audit policies and procedures in this area, and in devising our own training courses.

DEFINITION AND SCOPE OF AUDIT

Prerequisite to a discussion of USAAA functions is an authoritative statement on the definition and scope of audit. For this we turn to Army Regulations 36-5 which defines audit service in and for the Army, and outlines its scope in the following manner:

Audit—definition and scope. Audit is the independent appraisal activity within the Army for the review of financial, accounting, and related operations as a basis for protective and constructive service to command and management at all levels. Audit service as used herein includes audits of all military commands, installations, activities, and civil functions of the Department of the Army and audits and related advisory services in connection with contractual matters between the Army and industrial, educational, nonprofit, and commercial firms and institutions. While these areas are sometimes separately identified as internal audit and contract audit respectively, the policy of the Department of the Army is that audit service will be rendered in a manner which will give effective recognition to all factors bearing on a particular transaction and to the interrelationships of the various organizational elements of the Department of the Army.

a. Audits of military commands, installations, activities and civil functions of the Department of the Army.

(1) Purpose. To provide command and management at all levels with an independent, objective, and constructive evaluation of the effectiveness and efficiency with which financial responsibilities are executed. All organizational elements and levels of operations are subject to independent and comprehensive audit review and appraisal. Audit activities will be directed toward determining that financial management controls at all levels are adequate in concept and effective in application. Reports of audit will include facts ascertained and recommendations in connection therewith, to appropriate levels of command and management.

(2) Scope. To accomplish the foregoing purpose, audit activities will include—

(a) Examining and appraising policies, systems, procedures, records, and reports relating to budgeting, accounting, financial, or business transactions of all kinds and matters of a related nature.

(b) Ascertaining whether resources are properly accounted for and safeguarded from loss.

(c) Ascertaining the degree of reliability of accounting and supporting data and reports developed with the Army and the timeliness and usefulness thereof.

(d) Examining and evaluating, from a financial management standpoint, procurement, supply, and property management policies, procedures, and transactions.

(e) Appraising performance under, and ascertaining, the extent of compliance with, established policies, procedures, regulations, laws, etc., in the above areas.

(f) Identifying inefficiency or waste in the above areas.

(3) Relationship to activities audited. The auditor does not have the authority to make changes, or to order changes made, in the procedures or operations of the activities audited. The auditor is not responsible for developing systems, method, and procedures, or for the performance of duties constituting a part of regular line operations. It is the responsibility of command and management to take such action as deemed appropriate to correct all reported deficiencies.

b. Audits and related advisory services in connection with Army procurement contracts.

(1) Purpose. To assist in achieving prudent contracting by providing those responsible for procurement operations with financial information and advice on contracts and contractors, as appropriate.

(2) Scope. To accomplish the foregoing purpose, audit activities will include—

(a) Examining and appraising the accounting systems, books, records, pricing proposals, and

claims of contractors and subcontractors under proposed, current, completed, or terminated contracts and subcontracts as appropriate.

(b) Providing technical advice and assistance to procuring activities on accounting and related financial matters in the negotiation, administration, repricing, and settlement of contracts and subcontracts. This may include cost analysis functions involving, but not necessarily limited to, the examination of contractors' and subcontractors' books and records.

(c) Making recommendations concerning the allowability of costs claimed under cost-reimbursement type contracts, the adequacy of contractors' accounting systems and internal controls, the accuracy and reliability of contractors' cost representations and property records, and the technical adequacy of contractual provisions of an accounting or financial nature.

AUDIT SERVICE IN AND FOR THE ARMY

Having briefly introduced the USAAA in terms of its mission, organization and history, we can now address ourselves in somewhat greater detail to its actual functions. The phrase "Audit Service In and For the Army" expresses an integral, unified function. Perhaps it may be best understood by dicussing each of its major components individually, and then depicting their logical integration.

Audit Service

To establish a proper perspective for this discussion, we need to explain more explicity the term "Audit Service". For this purpose, we can well start with the basic, terse definition of audit, as set forth in AR 36-5, and then subject it to careful analysis.

> "**Audit** is the independent appraisal activity **within** the Army for the review of financial, **accounting**, and related operations as a **basis** for protective, and constructive service to command and management at all levels."

The word "independent" is both complex and significant. The tenet is well established in Government and industry that an auditor must be independent of the activity which he audits, that is he must have the freedom to report his facts and conlusions as he sees them. Patently, the value of an audit is diminished to the extent that the auditee can control or influence the auditor's judgment or his report. In consonance with this principle, the USAAA is independent of the Army installations and activities which we audit in that the commanders involved have no authority to dictate the audit conclusions or the manner in which they are reported.

On the other hand, we do not view the word "independent" as suggesting any less interest, understanding and sympathy for the problems of the Army activities which we audit. The U. S. Army Audit Agency, as its name indicates, is a part of the Army, and is primarily motivated by an interest in, and concern for the welfare of the Army.

The term "appraisal activity" denotes that our function is to examine, to evaluate, but not to investigate, in the sense that this term is used, and not to direct. In this latter regard, AR 36-5 specifically states that "the auditor does not have the authority to make changes, or to order changes made, in the procedures or operations of the activities audited".

The phrase "financial accounting and related operations", as indicative of the scope of our audit, is worthy of some discussion and explanation. Succeeding portions of this article, especially those concerned with vertical and lateral audits, clearly establish the fact that optimum audit service requires a comprehensive review, inter-relation and understanding of all matters bearing on the transactions under audit in order to arrive at meaningful conclusions and constructive recommendations. In accordance with accepted principles and practice in industry, and in direct implementation of Department of Defense directives and instructions in this area, AR 36-5 establishes the concept that audit must include: "examining and appraising policies, systems, procedures, records, and reports relating to budgeting, accounting, financial, or business transactions of all kinds and matters of a related nature". This would include, again quoting from AR 36-5: "examining and evaluating, from a financial management standpoint, procurement, supply and property management policies, procedures and transactions". The scope of audit then may be said to include virtually all of the Army operations except those in the tactical areas. Our charter is a broad one, and we are fully cognizant of the fact that the discharge of our mission in the best interest of the Army must entail the use of competent professional auditors, with appropriate experience and understanding of Army objectives and operations, guided by

carefully devised policies, and directed by a responsible staff.

The broad scope of internal audit has also raised questions regarding possibilities of overlap or duplication with the inspection and survey functions of other Army elements. Internal audit is described as "a type of control which functions by measuring and evaluating the effectiveness of other types of control". Some of the very first steps in USAAA audit programs prescribe that the auditor ascertain what inspections, surveys, etc., had been made during the period of audit and examine the available reports rendered. The work performed by all inspectors and survey teams are used to the greatest possible extent by USAAA auditors to reduce their own efforts and avoid duplication.

It must be conceded that some overlap will always exist. However, this is not necessarily undesirable. A commander must retain the authority to use inspectors to assure himself as to the well functioning of his organization. This command prerogative should be distinguished from the audit mission of the USAAA which is designed to furnish an appraisal to all levels of command and management. We agree with the many authorities in and outside of the Army who believe that both command inspections and independent audits are needed, and that the objective of all concerned should be maximum coordination and working together rather than seeking the elimination of either activity.

The term "protective and constructive service" establishes the dual and compatible objective of the USAAA. The term "protective" generally applies to that aspect of audit designed to ascertain whether the Army's resources are properly accounted for and safeguarded from loss. The term "constructive" relates to the auditor's use of his knowledge and experience to suggest methods and procedures by which command and management could accomplish its functions with greater economy and efficiency. It should be noted again that we do not have authority to make changes or order changes made.

The term "command and management at all levels" is indicative of the fact that our reports contain conclusions and recommendations conveyed to all levels concerned. For example, an audit of an Ordnance Procurement District may result in certain recommendations to the District Chief on matters which are within his authority and control. The District may have encountered problems which were generated at higher levels - an Ordnance Mid-Management Command, perhaps the Office, Chief of Ordnance, or Office, Deputy Chief for Logistics or Office, Comptroller of the Army or the Office of the Secretary of Defense. Through review and discussions at all indicated levels, the auditor ascertains the source of the condition requiring improvement and directs his recommendation to the appropriate authority.

Audit Service in The Army

We mentioned earlier that at the time the USAAA was created in 1946, it assumed from the U. S. Army Commanders in CONUS the responsibility for auditing "military property and related accounts". Initially the examinations by the USAAA were made of these individual military property accounts, cash accounts, sales and other accounts, and a separate report was rendered to the accountable officer of each account reviewed. In 1953, comprehensive installation-wide examinations and related reporting to installation commanders and higher levels of command were substituted for the account-type audits. The latter technique was introduced as a result of the recognition that maximum audit service to an installation commander required a concurrent examination of the financial effectiveness of all of the installation's operations as an entity. This method was essential to the understanding and appraising of the interrelationships among programming, budgeting, funding, accounting, purchasing, property control and disposal, and the other functions of the installation.

The next logical step in the development of audit service within the Army was the recognition that an audit and a report on an individual installation did not always result in a comprehensive evaluation of the transactions and operations involved. The examination of the award and administration of contracts by a procurement district is incomplete if consideration is not accorded to the actions of higher commands and subcommands relative to determination of requirements, specific instructions and authorizations and the budgetary aspects of the procurement; it is also incomplete without consideration of the distribution channels for the item procured, and its ultimate use and disposition. Similarly, an audit of stock levels at a depot cannot be meaningful unless an examination is currently performed at the technical service supply and stock control point where the quantity level of supplies is determined.

The vertical audit technique was thus introduced to permit the rendering of a fuller audit service by the concurrent examination of selected transactions and/or items of supply through all Department of the Army levels concerned with the determination of requirements, budgeting, funding, procurement or manufacture, shipment, receipt, storage, issue, and

end use. The vertical audit generally encompasses concurrent examination at DCSLOG, the Office of the Chief of the Technical Service involved, the applicable supply and stock control points, a representative number of depots, procurement offices and posts, camps and stations.

In the continuing quest for a fuller and better audit service within the Army, the lateral audit was added as a companion to the vertical audit. The lateral audit is a concurrent Army-wide examination of the financial aspects of a common operation or function performed throughout the Army. The lateral audit of depot and field maintenance activities is illustrative. Repair, rebuild, and overhaul activities throughout the Army, including the various technical services and major Army commands, are examined concurrently during a selected period and a consolidated report is prepared which sets forth the patterns, trends, comparisons and overall evaluations of the maintenance and repair activities within the Army, as a whole.

Auditing within the Army has thus witnessed a significant evolutionary growth from the restricted, mechanical account-type audits to the current world-wide comprehensive vertical and lateral examinations.

The focal point for our audits of Army installations and activities, which exceed 500 world-wide, is the individual "installation audit", whether performed as part of a vertical audit or individually. All of these audits are programmed well in advance of the beginning of each fiscal year, and these programs and schedules are coordinated with the Army Inspectors General and with the General Accounting Office. Before the actual audit begins, liaison is effected with the commander to assure the appropriatness of the date. Thereafter, a small group of auditors perform a preplanning survey, in effect an estimate of the situation. At the conclusion of the preplanning stage, a formal entrance conference is held with the installation commander and his staff. At this time, the USAAA representatives further explain the objectives and techniques of the audit and invite suggestions from command as to any particular areas in which audit attention is desired.

As conclusions and recommendations are developed during the course of the audit, they are staffed with command, and reactions and views are obtained. At the conclusion of the audit, a draft report is prepared and submitted to the commander for review and comment. A formal exit conference is then held with the commander and his staff, at which time every effort is made to obtain the final views of command and to resolve any areas of differences. Although complete accord is not always possible with regard to conclusions and related recommendations, we do attempt, as a minimum, to establish the accuracy of the facts. Our audit reports contain a statement by command as to concurrences or nonconcurrences relating to each finding and recommendation and, where concurrence is indicated, a statement of the action taken or contemplated.

AR 36-5 provides that each addressee receiving a report of audit of a military command, installation, or activity will, within 60 days of the date of the transmittal letter, submit to The Adjutant General, Attention: Comptroller, a reply indicating concurrence and corrective action initiated, or a statement of nonconcurrence with reasons therefor. Through our extensive staffing during the course of the audit, we find that over 90% of our findings and recommendations are concurred in formally upon receipt of the report.

Audit Service for the Army

On its establishment in 1946, the USAAA assumed from the Technical Services in CONUS the responsibility for auditing contractor's claims and representations as to costs incurred under Army contracts, and contractor maintained records showing accountability for Government property in the hands of contractors. Cost and property audits were made separately, often by different groups of USAAA auditors, and were often limited to verifications of vouchers submitted and accounts maintained for contract purposes.

Through the years, audit service for the Army was significantly extended and improved; voucher verifications under cost-type contracts evolved into comprehensive examinations of contractors' records and controls; audits of major fixed price redeterminable contracts changed from a one-time approach at the redetermination point to a more effective concurrent examination throughout the life of the contract; audits of industrial property were integrated with the related cost examinations, and the interrelationships were recognized.

Through the extended use of professional auditing procedures, the audits made by the Agency were broadened from their previous cope as a review of the books of account. Physical observations and checks were made of operations, labor, inventories and use of facilities. In this connection, the industrial property audits, once confined to checks of accountability as recorded in the contractors' records, were expanded to the determination that the property was used in accordance with contractual provisions and in the interest of the Government.

Audit service to procurement officials was expanded to provide accounting counsel relating to contract financing, contractual provisions which operated to the detriment of the Government's interest, preaward surveys, initial and repricing negotiations and other areas. Inevitably, this expansion of audit service to individual contracting officers branched out to a wider service to the entire Army Establishment through an evaluation of certain aspects of procurement actions. Basic contracts, supplemental agreements, financing, payments and other contract administration actions were reviewed in the light of the auditor's knowledge of the contractors' cost and operating experience, and disclosures were made where the Government's interest appeared to be adversely affected.

In summary, audit service for the Army developed from a routine verification of costs claimed by contractors on individual reimbursement vouchers and reporting to individual contracting officers, into a mature and comprehensive service to procurement at all Army levels.

From time to time, differences have existed at the contracting officer - auditor level as well as the Department of the Army, Department of Defense, and Congressional levels as to the precise authority of each in the area of cost determination and related contract administration matters. The contracting officer, of course, as the signatory for the United States Government has the final responsibility and authority in all contractual matters. In order to discharge this authority and responsibility, he is provided with a "team" of experts in various fields - legal, engineering, technical, etc. The USAAA auditor, although not an employee of the contracting officer or his procurement office, is nevertheless considered a full-fledged member of this "team". In the Army, through close cooperation by procurement and audit personnel at Headquarters, Department of the Army and field levels, this problem has been satisfactorily resolved. Today, the auditors' services are both volunteered and sought after in every accounting and financial area of contract administration. We are called upon to perform audits and surveys of new contractors to ascertain their financial capability to perform, and to advise the contracting officer as to the best type of contract financing which should be made available. We perform surveys of contractors' accounting systems to ascertain whether the systems and the related books and records are adequate to accurately accumulate and disclose costs under variable fixed-price and cost-type contracts. Upon request, we evaluate contractors' initial pricing proposals. We participate, upon request, in negotiation conferences with contractors and serve as the accounting advisors in all contractual matters brought before the Armed Services Board of Contract Appeals.

All of the above services are in addition to our major function in this area of auditing contractors' books and records to ascertain the validity and reimbursability of cost claims and representations under cost reimbursement and variable fixed-price contracts. This includes, as an integral portion of these audits, the examination of accountability and use of Government property in the hands of contractors.

Audit Service in and For The Army

For the first ten years of the Agency's life, its programs for audit service in the Army (internal audit) and audit service for the Army (contract audit) progressed and matured. However, certain gaps, or areas in which neither function, individually, was able to fully provide service to the Army could not be avoided. The USAAA had long been aware of the fact that maximum audit service required a complete integration of these two functions. This integration, however, could not be effectively implemented in full until each of the functions had achieved sufficient experience and sophistication. The first step taken toward the gradual merging of these two functions was the establishment of the USAAA personnel interchangability policy in 1953 which required the assignment of "contract auditors" to " internal audits" and the assignment of "internal auditors" to "contract audits". This policy was based on the premise that an understanding of the total USAAA mission by all of its auditor personnel is a prerequisite to the effective accomplishment of the total audit service.

The USAAA was encouraged in its plan for moving toward the integration of the two audit functions by the Interim Report of the Preparedness Subcommittee No. 3 of the Committee on Armed Services, U. S. Senate (15 January 1954), on the "Implementation of Title IV National Security Act of 1947 as Amended", which stated in part:

> ". . . Internal audit is designed to provide independent internal audits and appraisals, both of financial and business operations of departmental activities to determine the extent of adherence to appropriation provisions and legal requirements and to provide a means whereby interpretation of defense contract costs can be applied uniformly by all military departments.
>
> "The full implementation of the internal audit function would make available to all

echelons of management independent review of financial and business activities, recommendations for correcting deficiencies, objective appraisals of the effectiveness of systems, procedures, and regulations pertaining to fiscal management, and would assure both contracting officers and private contractors of efficient examination of private contract records."

In 1957, after a careful study of the status of its audit programs and organizational alignments, the USAAA with the approval of the Comptroller of the Army, reorganized its Headquarters and field offices to provide an effective means of operations under the now integrated mission, generally referred to as the "Single Audit Concept". Our orientation to the Agency personnel at the time of this change stated in part:

The Single Audit Concept is not a "gimmick" nor a totally new set of audit techniques. It is a necessary and logical step in the development and improvement of audit service rendered by the USAAA. It recognizes the complex interrelationships involved in a single transaction selected for audit, and encourages the use of professional audit techniques to effect a comprehensive audit of that transaction, at whatever locations involved. While these techniques have been employed within the USAAA in the past, and have been well developed separately within the former internal and contract audit spheres, they have not been effective where the interrelationships required audit action, both at military installations and contractors' plants. The Single Audit Concept, then, extends generally accepted auditing standards and techniques to bridge this gap and thus provide a truly comprehensive and constructive audit service in and for the Army.

LIAISON AND OTHER RELATIONSHIPS

In addition to the performance of the basic audit service function, the USAAA renders various types of peripheral services to the Army. For example, all Army Regulations which bear upon any of the areas subject to audit are staffed wth our Agency. In accordance with established Army procedures, USAAA's concurrence or nonconcurrence is submitted only in respect to those regulations which directly affect audit. In all of the other regulations which are staffed with us, we try to be as helpful as we can by submitting suggestions and recommendations based on our extensive experience.

The USAAA works closely with ODCSLOG in providing representations on various committees such as Armed Services Procurement Regulations and Army Procurement Procedures and others. Our representatives provide technical counsel, advice and suggestions on all accounting, financial and other areas in which audit has an interest.

In other matters the USAAA works closely with the audit organizations of the Office of Secretary of Defense, Air Force and Navy. One important facet is known as audit coordination. It has long been a policy of the Department of Defense that contractors performing under contracts awarded by more than one military department shall be coordinated under, that is assigned to, one of the three departments which performs audits for all. The determination as to which service should perform the audits (audit cognizance), is usually determined in consideration of preponderence of work and other factors. Another of our activities in this area, is our participation in the preparation and timely revision of the Contract Audit Manual. This Manual is a joint Army-Navy-Air Force publication designed to achieve consistency in the audit approach at contractors' plants by the audit agencies of the three military departments.

Reference was made earlier to the coordination of USAAA audit schedules with those of the General Accounting Office and with the inspection schedules of the Inspectors General at all levels. Some six months prior to the beginning of each fiscal year, representatives of our Agency and those of Office of The Inspector General meet to coordinate inspection - audit schedules throughout the Army with the objective of minimizing the burden on commands. Similar coordination is attempted with representatives of the General Accounting Office. This latter coordination is generally not quite as successful inasmuch as statutory requirements and congressional requests sometimes preclude the GAO from conforming to the coordination agreements.

CONCLUSION

Glancing back once more to November 1946, when the Agency was established, we remember a time when the Financial Management Plan (FMP) in the Department of Defense was not much more than a gleam in someones eye. The progress and development of the U. S. Army Audit Agency thus took place concurrently with the growth of the Financial Management Plan. In some ways, this association has been advantageous in that the professional audit training and experience of our personnel have been available to Army managers, operators and accountants in connection with recording, reporting and decision-making processes under the FMP. In other ways, we had many occasions to question

the advantages of this association. The multitude of problems generated by the sometimes extensive requirements of the new financial practices, in the face of continuing shortages of experienced personnel required for this purpose, frequently made the FMP far from popular. This unpopularity often rubbed off on all who were in any way identified with the plan - and this usually included the USAAA.

Despite the difficulties involved in learning how to use and derive benefits from the new financial management techniques, virtually everyone now agrees that the Army's business operations today are considerably more sophisticated, mature and effective, as compared to those in November 1946. We in the Army Audit Agency are happy to have had the opporutnity to contribute to this progress.

COL. WAYNE HUNTER DIES; HEAD OF CHAPLAIN SCHOOL

Col. Wayne Lindsay Hunter, Commander of the Army Chaplain School at Ft. Slocum, N.Y., died of a heart attack September 5, 1960 in his quarters there, He was 52.

Col. Hunter was in the Washington area from 1952 to 1956 as comptroller in the Office of the Chief of Army Chaplains. From October, 1954, to June, 1955, he undertook part of the pastoral duties of the Arlington Presbyterian Church while the church was without a pastor.

Col. Hunter was educated at Cornell College, Iowa, and the McCormick Thelogical Seminary, Chicago. He served in the Pacific theater during World War II and earned the Legion of Merit.

He is survived by his wife, Iola, and a daughter, Mrs. John W. Haskel, of Wayne, Pa.

Services were held at 3 p.m. Thursday the 8th in Ft. Myer Chapel with interment in Arlington Cemetary.

Col. Hunter was a personal friend of your Editor.

The Officers and Members express heartfelt sympathy to his family and friends who mourn his passing.

The Editor

NOTICE OF A REPRINT

Due to continued interest in the three Articles on Rubrics for Financial Management, published in THE ARMED FORCES COMPTROLLER, a reprint in brochure form is available at cost. Send request, to Leo J. Richard, CPA, Associate National Editor, 6410 Ridge Drive, Washington 16, D. C.

Kenneth E. Dunlap
National Editor

FINANCIAL MANAGEMENT OF THE MILITARY PERSONNEL APPROPRIATION

Major General E. S. Ligon, Jr., Director of Personnel Planning, DCS/Personnel
Hq. USAF, Washington, D. C.

The problems which my shop is presently concerned with have a direct impact on Comptroller activities. I'm sure you will see the close relationship of our management efforts to the objectives of Comptrollership. The purpose of my brief presentation is three fold:

First, to review the scope and responsibilities in the development and management of the Military Personnel Appropriation.

Second, to identify the problems and deficiencies now experienced in the effective accomplishment of this responsibility.

Third, to review recent developments which necessitate the improvements now being implemented within the Comptroller system.

I believe it is not generally known in the Air Force, however, what the magnitude of this Appropriation is, and specifically how it is developed and managed. Let me assure you that funds for the pay and allowances of military personnel is not "Manna from Heaven." Included in this Appropriation are funds to pay, feed, clothe and move all military personnel in the Air Force. This amounts to around $4 billion each year, representing over 20% of the total annual funds appropriated for all Air Force programs and activities.

Since 1951, responsibility for the development and administration of this Appropriation has been delegated to the Director of Personnel Planning under the DCS/Personnel. This involves a unique assignment for a Director in the Air Staff. On the one hand he performs the normal staff functions at Hq USAF regarding personnel planning activities. On the other hand he performs the functions of a major commander with respect to the financial management and certification of obligations for this large Appropriation. Let me define a little more precisely what this responsibility involves.

First, the military personnel program is formulated within the general policies, program guidance and fund limitations stemming from the National Security Council, the JCS and OSD and coordinated within the Air Staff. This program is stated in terms of beginning, ending and average strengths, broken down into each grade for all categories of military personnel. It includes monthly phasing of promotions, gains and losses, the flying program, and projections for longevity and dependency factors. It also reflects the overseas deployment, proficiency pay programs and numerous other details required for costing.

Budget estimates for these programs are computed about a year before the fiscal year begins. A wide variety of source data must be used and evaluated in each costing. Few perhaps realize that there are 25 separate pay and allowance entitlements provided by law for military personnel. Each of these require specific source data and separate computation procedures. A miscalculation of only a few cents in the monthly average base pay of an airman can, for example, represent millions of dollars too much or too little in the total Appropriation.

When the budget program is completed, the Director of Personnel Planning is responsible for the presentation and justification of these requirements through all the echelons of review and final enactment of the annual appropriation. Now this military Personnel Appropriation is one on which many Congressmen are "experts," considering the heavy volume of their correspondence dealing with personnel type gripes.

The last and most challenging responsibility involves the administration and the financial management of the Military Personnel Appropriation.

Financial Management

The financial management I speak of is, in one sense, a close parallel to the financial management exercised by each of you with regard to your Command funds. We also develop Financial Plans which are revised quarterly. Funds for the open allotment portion (about 95%) of the Military Personnel Appropriation are received by Annual Budget Authorization and quarterly Allocations. Obligations are established and reported monthly and, based on monthly progress analysis, program adjustments and effected as necessary, to remain within fund availability. Last but not least, total annual obligations are certified by me for the open allotment portion after the close of the fiscal year.

There is, however, a most significant difference between my problem of financial management and yours. Whereas the bulk of your

funds are administered under specific allotment procedures, involving specific controls, documentation and specific certification of availability before obligations are incurred, my shop must manage over $3.7 billion under open allotment procedures. Let me clarify an important point now. I am not critical of the open allotment method of administering this Appropriation. On the other hand this system is perhaps the only feasible method of administering such a world-wide program, which must be directly sensitive to centralized control. However, it will be readily seen that there is inherently a lesser degree of financial control under open allotment procedures. You may recall that Accounting Regulations prescribe that "An open allotment is one without specific limitation as to the amounts which may be committed and obligated thereunder by an officer or employee authorized to charge such open allotment accounts." (AFM 170-7B). In other words, with over 300 authorized disbursing officers spending the funds in this Appropriation, it resembles a "blank check" operation. Since it is not feasible nor recommended that disbursing officers have the capability of certifying availability of funds, some reliable system must be developed which will provide the control agency, AFPDP, with accurate and timely information on the funds expended or to be obligated each month.

Management Tools

At the present time, the management tools available to exercise the necessary degree of fund control are as follows:

a. Personnel strength reports. These strength inventories vary considerably from the number of personnel being paid, as reported through the finance system. Reconciliation of strength inventories must be achieved monthly by joint staff reviews resulting initially in the Joint Estimate and subsequently the Audited Strength Summary.

b. Personnel Sample Surveys, which reflect trends in the average longevity and dependency factors. These have a direct bearing on base pay and quarters allowances. The Sample Surveys are taken in February, May and October each year, however, in the past the results of these Surveys have not been available for use by my shop until 3 to 4 months after the "as of date." Recently, arrangements have been made to obtain this data 45 days after the date of the Surveys.

c. Expenditure reports, which are received monthly, are in summary form and do not provide the detail breakdown necessary to evaluate cost trends. Final expenditures by allotment serial number within budget projects are not available within a given fiscal year until 12 months after the close of that fiscal year. This means that the validity of average cost factors derived from sampling techniques (subject to a 3-5% error) cannot be verified until one year after the end of the year to which they apply.

d. Sample Pay Data Reports, provide information monthly on which average cost factors are monitored for pay and allowance items. This interim plan for improvement was initiated in October 1957 and, whereas it was helpful, it has now proven to be inadequate and will be superseded by the new accrued earnings report which I will discuss later.

Problems and Deficiencies

Considering the magnitude of this Appropriation, the serious problem of precisely projecting fund requirements and the relative loose financial controls possible, an effort was made in 1955 to obtain authority for a reasonable degree of fund flexibility. As you have guessed, such authority has not been made available. Therefore, we are bound by the same restrictions in administering the open allotment funds as apply for specific allotment funds which are prescribed in DOD Directive 7200.1. There is another significant feature in the budgeting for military personnel costs which is too often overlooked. This is the "intangibles of human behavior." No crystal balls have yet been devised which can foretell with the high degree of accuracy necessary, how many airmen will reenlist, how many will get married, and what the average size of their families will be. Also, what the influence on our military force will be due to what unpredictable political development or what ups and downs in the civilian economy. These developments have a direct and substantial impact on our appropriation affecting for example reenlistment bonuses, base pay, and quarters allowances. These were the unpredictable factors which generated deficiencies in this Appropriation in the last two years. Due to a minor percentage error, inherent in the sampling technique, and more importantly, due to the time lag in the receipt of basic personnel data, these unexpectedly high upward trends were not revealed until after the close of the fiscal year.

In managing the military personnel program, certain adjustments to reduce costs can be and are made to remain within fund availability. However, to a large degree our hands are tied and we have a limited ability to effect these actions. Let me cite some examples. If we ascertain early in the fiscal year that we are exceeding the program, then we have some

"elbow room" to effect program reductions during the balance of the fiscal year. "Exceeding the program" may be due to international crises which prevents programmed reductions, or the need to absorb additional costs. The rations rate was increased 5¢ on 1 January 1959 by OSD and Social Security rates were increased last year which made it necessary to absorb an additional $6.7 million in the FY 1959 program. Unfortunately, however, we do not normally have sufficient factual data, neither personnel nor financial data, early enough in the fiscal year to take effective action without serious detriment to the program. Under such circumstances, we have had to take drastic action to reduce man year costs by early releasing personnel several months before the normal dates of separation. In order to save money by this action, an airman first class must be released at least one month early, and a 1st Lieutenant, non-rated, two and one-half months early, to offset separation costs before reducing appropriation costs. My point is this, adequate lead time is most essential in achieving the degree of management necessary and this is wholly dependent on the promptness and accuracy of the reporting system. In the event program deviations are not revealed until near the end of the fiscal year, the corrective actions which can be taken are seriously limited.

Recent Developments

Enactment of the Military Pay Act in May 1958, no doubt had a direct influence on increasing the retention rate and improving the maturity of our force. This was the primary objective. However, the Air Force, as is the case with the Army and Navy, is experiencing deficiencies in the military personnel appropriations due to the unexpected higher trend in dependency and longevity. Supplemental fund requirements for the Services have been presented to Congressional committees. In the absence of any firm assurance, through improved control, that these deficiencies will not be repeated, the Congress is reluctant to authorize additional funds to cover the deficiencies. To correct this situation a survey is now underway, conducted jointly by OSD, BOB, GAO, and Service representatives. As you may know, aggressive efforts are jointly being made, under the supervision of the Air Force Comptroller, to develop a more responsive and accurate financial management system for this appropriation. Recognizing the long range aspect of such a basic systems improvement, our joint efforts have been directed in two phases:

a. An interim plan which will assure immediate improvements and,

b. A long range plan of ultimately mechanizing the military pay system.

Among the interim actions taken are, the expediting of Personnel Sample Survey compilations and analyses previously mentioned, and refinements in personnel statistical reporting, including 100% reporting of airmen by total years of service.

Of major importance to AFPDP is the recent development of an "Accrued Pay" report of military pay and allowances by the Director of Accounting and Finance and the Air Force Accounting and Finance Center. This represents a real milestone toward validation of obligations in the detail required. Let me illustrate the advantages of this plan. By multiplying the number programmed by the current average rates, the total budget estimate is developed. As you can appreciate, the key to this process is the accuracy of the average rates used. The importance of the average rates or cost factors for the numerous items of pay and allowances cannot be over-emphasized. Even minor errors, due to inaccurate or delayed reports in these cost factors, can distort and substantially change the total budget.

Effective financial control of this appropriation dictates that AFPDP must have the capability of evaluating cost factor trends by item of pay and allowance on a more accurate and timely basis. The new Accrued Pay report, now being implemented is designed to provide the required detail. With the actual data by grade for numbers and dollar amounts for each item, we can isolate cost factor trends, validate obligations and pinpoint specific types of program deviations. This will, of course, facilitate effective program adjustments and assure the development of more reliable budget estimates.

Of particular importance is the fact that this new Accrued Pay report represents a major step toward the ultimate long range objective of mechanizing the military pay system. We are encouraged by the progress made in this direction as evidenced by the recent test of the National Cash Register prototype equipment at Hq CONAC, and the current test at Barksdale AFB utilizing existing mechanized equipment. Another related long range effort which should result in further improvements in the management data for this program is Project AUTOMATE. This will modernize the personnel reporting system providing more complete and timely personnel data and will eliminate the out-moded "morning report" system.

In conclusion, there are three main points I wish to summarize:

a. The need to develop basic improvements in the reporting system for the Military Personnel Appropriation has been intensified, by recent developments and the increasing complexity of effectively managing this sensitive program.

b. The new Accrued Pay report, while imposing a greater workload at present, is vital to achieving early improvements in the financial management of this program and is an important step toward ultimate mechanization.

c. The management of the Military Personnel Appropriation, under open allotment procedures, is a major Air Force-wide problem which can be accomplished only by the knowledgeable and full support of the Comptroller system.

KNOW YOUR OFFICERS

Colonel A. E. R. Howarth, the Director of Accounting for the Department of the Army, has had a long and diversified Army career. On 9 June 1932 he graduated from the United States Military Academy with a Bachelor of Science Degree and was commissioned a Second Lieutenant of Infantry the following day. After serving in various Infantry Company and Battalion assignments he transferred to the Finance Corps in 1939. As a Commander and Special Staff Officer he served as a School Commandant; Corps Area Property Auditor; Director of Training, Army Service Forces Training Center; Fiscal Director of an installation; Chief, Accounting Division, Office Chief of Finance; and Deputy Commander, Fort Benjamin Harrison and Army Finance Center. As a General Staff Officer his assignments include Comptroller, Military District of Washington; Fiscal Director for Europe, Office Foreign Liquidation Commissioner; Chief, Accounting in the European Command; and presently Director of Accounting, Office Comptroller of the Army.

Colonel Howarth has been very active in the American Society of Military Comptrollers in Paris, France; Indianapolis, Indiana; and Washington, D. C. He is best known in the Society for having served as President of the Washington Chapter for three separate terms. For his activities in the Society he has received two Certificates of Outstanding Service in the profession of Military Comptrollership.

He is presently active in other organizations as a member of the Executive Council of the Army Finance Association, a member of the Advisory Committee of the Federal Government Accountants Association of Washington, D. C. and the Treasurer of his 1932 Military Academy Class.

Military Schools attended besides the United States Military Academy are the Infantry School, the Finance School and the Army War College. Colonel Howarth attended the Management Problems for Executives Course at the University of Pittsburgh in 1954.

THE BALANCED BUDGET

Arthur Smithies, Nathaniel Ropes Professor of Political Economy, Harvard University
(Reprint from Proceedings of the American Economic Association published May 1960)

I

For over a quarter of a century, economists, or the majority of them, have been protesting against the dogma that the annually balanced budget is the path of financial virtue. I regret to have to report that we have made remarkably little headway at the high political levels. Despite the economists, or perhaps because of them, every President has clung tenanciously to the dogma. President Roosevelt's papers clearly reveal that he regarded budget deficits as an evil that had to be tolerated in order to achieve a greater good. The published views of President Truman make his views on the subject abundantly clear. The spoken utterances of President Eisenhower leave no doubt about where he stands on the matter. But despite our failure to demolish this pillar of the financial temple, there seems to be general acceptance of the view that deficits, though evil, are inevitable during depressions. The $12 billion deficit in 1958 does not seem to have been grist to anyone's political mill - perhaps because everyone participated in creating it. But 1959 and 1960 have seen desperate if not ruthless efforts not only to achieve a balanced budget, but to achieve balance at the preexisting level of taxation. I can easily visualize the tortured session in the Budget Bureau and the Treasury that produced a surplus of $100 million in the President's budget for fiscal 1960. I imagine similar sessions are going on this minute with respect to fiscal 1961.

Adherence to the dogma is so strong that we are prepared to delay vital defense programs in order to pay lip service to it. The government is also willing to impair the budgetary process itself in order to preserve the semblance of balance. As one spectacular example, I can find no indication of the capital cost of post office construction in the President's 1959 budget. Even though the Government has decided to buy its post offices on time, surely the public is entitled to know how many post offices are being bought. If rationality rather than dogma dictated attitudes toward the budget there might be less incentive for deception.

The survival of the balanced-budget rule, however, is not entirely a matter of dogma. Individuals and groups with no dogmatic convictions have a strong interest in keeping the dogma alive. The classical objections to government debt was a natural reaction to the consequences of government extravagance during the 17th and 18th centuries. This requirement of a balanced budget was and still is the simplest and clearest rule to impose "fiscal discipline" and to hold government functions and expenditure to a minimum. Those who still entertain this desire as an overriding objective may be well-advised not to retreat from the general rule until they are reasonably sure that the retreat will not become a route.

The advocates of unbalanced budgets have not been reassuring from the conservative point of view. The unbalanced budget usually means fiscal freedom, borrowing and deficits, and not deficits or surpluses as the occasion demands. The New Deal deficits were associated not simply with recovery but with recovery and reform; and when the New Deal was in full flower, the President took pains to insist that recovery was inseparable from reform.

Even an avowedly counter-cyclical fiscal policy is believed to give rise to an upward trend in expenditures that might not otherwise occur. The expenditures undertaken to counteract a depression are unlikely to be discontinued in the succeeding boom. If the boom is countered at all, the measures taken will be credit restriction or increased taxation; and then further expenditure programs will be taken to offset the next depression. The increased expenditures hastily undertaken to meet the 1958 recession indicate that this possibility is by no means academic.

The discipline of the balanced budget is not necessarily the right degree of discipline. It is generally agreed that in time of war the unwilling taxpayer should not be allowed to hamper the defense of the country. The taxpayer is supposed to come into his own in times of peace. But the present situation is neither peace nor war. Despite amiable conversations among heads of state, a permanent state of military readiness for the indefinite future will be imperative. Organized groups of taxpayers have not shown a clear appreciation of the situation. The President and the leaders of Congress must have some freedom to act even though they cannot pay the bills from current revenue. If all notions of fiscal discipline and budget balance were removed, and no alternative was provided, there can be no doubt that expenditures would increase to a level that was economically undesirable and politically demoralizing. However rich we become, public and private wants are likely to

increase more rapidly than the means of satisfying them; and in our complex political system some rules of financial conduct that are simple enough to survive in a political context seem to me to be desirable.

II

Nevertheless, the rule that the budget should be balanced annually is inadequate to secure the proper allocation of resources between the public and the private sectors. The objections to it have been stated time and again. I shall therefore confine myself to a brief summary of those I consider the most important.

First, to attempt to balance the budget on an annual basis is inconsistent with the long-range character of many government programs. Research, development and procurement for defense purposes inevitably involve activities extending over a number of years. If the programs are well conceived in the first place, waste and inefficiency will result from disrupting them in order to achieve particular budget results. I remember that on one occassion during the Korean War the Government deferred payments to contractors for the sake of the appearance of the budget, and naturally had to pay a high rate of interest to them as compensation for waiting for their money. Again, it is wasteful to suspend work on a battleship for the sake of avoiding disbursements at a particular time. Perhaps the battleship should not have been started; but to leave it half finished for a time simply adds to its cost.

Another case where the requirement of annual balance is disruptive is the foreign aid program. This program is the favorite target for indignant charges of waste and inefficiency. But there is no surer way to waste and ineffectiveness than to expose our own program to such viscissitudes and uncertainties that the receiving countries are unable to mesh their own activities with it. Everyone who has examined the problem with understanding and sympathy has stressed the need for continuity.

With respect to the questions of "anuality", the economists and the accountants are in league against effective government operations. The accountants like to clear up their books every year and hence stress the need for annual control. The economists take the same point of view because they want a flexible fiscal system whose impact on the economy can be varied from year to year as a contribution to general economic stability. Some compromise between the programming and the annual points of view is clearly needed. Neither can be ignored. But a satisfactory compromise in my opinion, requires less strict adherence than we now attempt to the annual point of view.

A second objection to the balanced budget rule is that stress on the balanced budget as a criterion tends to give the impression that the government is well managed if the budget is balanced. The examples I have just given illustrate this point, but more generally, there is no indication that some overall rule will secure efficiency down the line. When budget requests are cut to conform to the rule, the programs most likely to suffer are the new ones designed to meet new situations, and those most likely to survive are those that have acquired the support of powerful vested interests inside or outside the government. Not all new activities are necessarily more meritorious than the old, but some of them are. The way we now seem to be placidly accepting the Russian lead in space exploration - p r e s u m a b l y for budgetary reasons - is a vivid illustration of my point.

Government efficiency cannot be achieved by budget ceilings imposed at the behest of hard-headed budget directors and appropriations committees. While some discipline of this kind is probably inevitable, the solution must lie in application of the economics of choice, subject to budget constraints, at every level of government. Public administrators traditionally don't learn economics, and vested interests have a strong interest in avoiding the application of economic principles.

The third objection relates to the effect of the balanced budget on economic fluctuations. Surely it is now agreed by economist that attempts, especially successful ones, to balance the budget every year worsen economic fluctuations. If governments curtail their expenditures when they are short of revenues and expand them when yields rise as a result of economic prosperity, their activities will be cyclical rather than counter-cyclical. It may be argued that I am stressing income effects and ignoring the monetary consequences of the balanced budget. The pre-keynesian view was that depression cuts of expenditures released funds for the private economy. But the decisive objection to this point of view is that a central bank can do the same thing so that the country can have the benefit of both income and monetary effects.

My final objection is that the balanced budget will not necessarily be the policy needed for achieving desired rates of economic growth. One of the unhappy ironies of the present time is that although the country is richer than it has ever been, further growth is becoming an explicit objective of policy - at a time when we should be enjoying the euphoria of John Stuart Mill's stationary state. We are not prepared to get the additional resources needed for national security and social welfare by cutting back on consumption. That would mean higher taxes. We

must therefore grow in order to obtain more resources. Some eminent authorities maintain that the American economy must grow at 5 per cent a year instead of its traditional 3 per cent. If accelerated growth is required, it seems to me very likely that the total rate of national saving must be increased, and the only practicable way to increase total saving is through the generation of budget surpluses. Budgetary doctrines in this country has hardly begun to contemplate this possibility.

III

A more general objection to the balanced-budget or any other budgetary rule is that it places unnecessary restrictions on ability to achieve a variety of economic policy objectives. In terms of Tinbergen's now famous proposition, the requirement of balances may leave the government with fewer instruments than it has targets; and consequently may mean that objectives more important than balance must be ignored or that new instruments must be discovered.

The point can be illustrated very simply. Let us ignore for the moment pressing issues such as inflation and the balance-of-payments; and assume that the government has only three policy objectives: first, it must spend enough to give effect to foreign and domestic policy objectives; second, it must maintain full employment; and third, it must assure that private investments will, in each year, be carried out at the rate required to maintain a given rate of economic growth for the economy as a whole. Thus every year it has three fixed targets: national income or output, private investment and government expenditure. With present institutional arrangements, convictions and predilections, it is virtually restricted to three instruments, namely appropriations, taxation and general credit expansion or contraction.

If the government has freedom to use these three instruments it can attain the three objectives. If in addition it must balance the budget or maintain any prescribed relationship between expenditure and revenue, it has set for itself a fourth objective, and is consequently one instrument short.

So long as it possesses only the three instruments some other must give way: growth, full employment or the government's own programs. As a matter of fact, during the last few years the government has placed even more severe restrictions on itself. It has attempted not only to balance the budget, but to balance it at existing levels of taxation. This means that it has denied itself the use of one instrument. The expenditure objective necessarily gives way to this requirement (insofar as the requirement is met), and the government is left with general credit policy to achieve both full employment and a satisfactory rate of growth - a task that it is logically and practically impossible for the harrassed monetary authorities to perform. Their difficulties are compounded when in addition they are expected to help correct the balance-of-payments and to prevent inflation.

If the government is short of instruments, it must acquire new instruments if it is to attain its objectives. Such new instruments could be selective credit controls, selective tax measures and various kinds of direct controls. It would take me too far afield to discuss these possibilities in detail. Suffice it to say that many of them are pure anathema to those who most vehemently support the balanced budget doctrine. They are likely to be required to pay a high price for the dogma.

IV

We are unlikely to achieve full coherence in the formation of fiscal and budget policy. Some incoherence is likely to remain so long as there is separation of powers between the President and Congress and between the powerful committees of the Congress. Nevertheless considerable improvement is possible and feasible. To be optimistic about that one only has to reflect on the extent to which economic thinking has penetrated the government since World War II, largely as an outcome of the Employment Act of 1946 and the institutions set up under it. I therefore consider it worthwhile to offer some suggestions concerning the directions that improvement might take.

First of all the President should transmit his budget to Congress as part of a comprehensive economic program. This is not done at the present time. The present Budget Message is notable for its lack of economic analyses. The President's Economic Report on the other hand is equally notable for its lack of an analysis of the economic impact of the budget. However much they may consort in private, the Budget Bureau and the Council of Economic Advisers do not embrace in public. The President's program would analyze economic policy as a whole in terms of the variety of objectives to be attained and the instruments to be employed.

With respect to the budget itself, the President would recommend a surplus, balance or a deficit, depending on economic conditions. If a deficit was proposed, this would be proposed as a positive recommendation, not as a confession of failure to balance the budget combined with

a wishful hope that balance will be achieved next year.

This approach could have the same disciplinary value as the balanced budget. If the President was prepared to give the weight of his authority to the need for a surplus or a deficit of a certain amount, that should have the same disciplinary value as balance from the point of view of the Congress and the executive departments.

For this suggestion to be as effective as possible, the Congress would have to cooperate. In particular the Joint Economic Committee should join with the Appropriations Committee and the Ways and Means Committee in considering the President's program and in formulating Congressional economic and budgetary policy. But such a change in Congressional procedure is unlikely to come about unless the President takes the lead.

Secondly, the President's economic program should distinguish between long run economic policy, and the policy needed to counteract particular episodes of boom and recession. The long run policy should contemplate continuity in government operations and continued growth of the economy. Budgetary policy in particular should be designed to conform with the requirements of long run growth.

Of course long run policy would be revised from year to year, to take account of changing circumstances and to correct errors in diagnosis. But in the absence of violent changes, say in defense requirements, it seems unlikely that abrupt changes in the relation of government expenditures to revenues would be required. Consequently, some simple budgetary rule that should apply in normal circumstances may be feasible. In times of full employment without inflation it could be said that the budget should have a surplus or a deficit of some known order of magnitude.

It follows that the basic revenue and expenditure estimates should be made and published with reference to a full employment situation, rather than to the situation actually predicted. This is the stabilizing budget approach that has long been advocated by the Committee for Economic Development, but which has made very little headway in official circles.

I suggest also that if the government's policy is to keep a stable price level, the expenditure and revenue estimates should be made in stable prices. This procedure provides an automatic check on inflation. It would tend to prevent inflationary increase in revenue from being regarded as a substitute for taxation. It would also put some pressure on the spending agencies in the event of inflation. They should make some contribution by attempting to evaluate their activities. But if they consider that impossible, they should demonstrate the fact in a request for supplemental appropriations.

Thirdly, the question of counter-cyclical policy should be dealt with in a separate chapter of the President's program. This would include a discussion of the effects of recessions or booms on the budget and recommendations concerning the budgetary procedures needed as correctives.

In view of what I said above, long range government procurement programs should be interfered with as little as possible for cyclical policies. Nor should new programs that will last for a number of years be hastily adopted merely for the sake of relieving a single recession. This however, does not mean that all public works should be continued at the same rate regardless of booms and depressions. Highway construction and many items authorized by the Rivers and Harbors Bill can be adjusted to short term economic needs.

However, if the main emphasis should probably be placed on changes in taxation and transfer payments for purposes of short-run stability, the inefficiencies connected with abrupt alterations in expenditure programs could be avoided. The 1958 recession furnishes a good example. The government refused to use tax reduction as its fiscal weapon, and consequently got large and ill-considered increases in expenditures which will continue long after the anti-depression need for them has passed. Nevertheless, I believed at the time and still believe that the tax route would have been wrong. Taxes once reduced are notoriously hard to restore. In fact it is hard to think of any tax increases during the last 30 years that were not undertaken in response to emergency situations. Even the tax increases of the New Deal come under that category. If the existing tax rates are likely to be needed for long run purposes, it is of questionable wisdom to reduce them for short run reasons, unless the reduction can be of an explicitly temporary character.

This leads me, and has led many others, to the conclusion that short run stability should be achieved as far as possible through "built-in flexibility" of the budget and through monetary measures that can be readily reversed.

Built-in flexibility has increased appreciably as a result of social security, unemployment compensation and agricultural support on the expenditure side and through the automatic operation of the tax system. But such measures, even in conjuction with vigorous credit measures are unlikely to meet the requirements of a severe recession. There is need for further automatic measures. Consequently, I venture to repeat a proposal in which I participated

some years ago.* Under certain specified signs of recession, there should be an automatic reduction in the first bracket of the income tax. The reduction should be restored automatically when recovery has reached a prescribed point. To guard against inappropriate use of the remedy, its application should be subject to veto by the President. Devices such as this could give reasonable assurance that anything but the deepest depression would be corrected, and would help materially to avoid the psychological conditions that might produce depressions of the catastrophic kind.

Our proposal was considered in the chancelleries of the world and was unanimously rejected by respectable opinion. Had it been in effect it would have been very serviceable in 1958. Automatic reversible devices are the most effective way to avoid the radical political consequences of a flexible fiscal policy, and thus to allay the fears of those who cling to the balanced budget rule on rational rather than superstitious grounds.

To return finally to the long-run question, I have suggested that surpluses rather than deficits may be needed in the future - if the government pursues an economic policy that is consonant with national and international needs. But surpluses are hard to achieve. Senator Taft once remarked that in his long experience, surpluses and debt retirement occurred only through inadvertence. Perhaps the best we can do in the long run is to balance the budget.

* See the United Nations Report, National and International Measures for Full Employment 1950.

LETTER FROM THE EDITOR

Mrs. H. E. Cole
119 James Street
Scotio 2, New York

Dear Mrs. Cole:

The American Society of Military Comptrollers join me in expressing our heartfelt sympathy in the 5 March 1960 death of Captain Harold E. Cole, USN.

Most Sincerely,

Kenneth E. Dunlap

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